

GENERAL PROJECT NOTES:

1. THE FACILITY IS AN UNOCCUPIED SPECIALIZED MOBILE RADIO FACILITY.
2. PLANS ARE NOT TO BE SCALED AND ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS NOTED OTHERWISE. THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
3. PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTORS SHALL VISIT THE JOB SITE AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER.
4. THE CONTRACTOR SHALL RECEIVE IN WRITING, AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
5. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES, OR REGULATION TAKE PRECEDENCE.
6. ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES, CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY BEARING ON THE PERFORMANCE OF THE WORK. MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
7. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING BEST SKILLS AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT MANAGER AND WITH LANDLORD'S AUTHORIZED REPRESENTATIVE.
8. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A10BC WITHIN 75 FEET TRAVEL DISTANCE TO ALL PORTIONS OF THE PROJECT AREA DURING CONSTRUCTION.
9. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CHAPTER 16 OF THE INTERNATIONAL BUILDING CODE REGARDING EARTHQUAKE PIPING, LIGHT FIXTURES, CEILING GRID, INTERIOR PARTITIONS AND MECHANICAL EQUIPMENT. ALL WORK MUST BE IN ACCORDANCE WITH LOCAL EARTHQUAKE CODES AND REGULATIONS.
10. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON THE SITE AND NOTIFY THE PROJECT MANAGER OF ANY DISCREPANCIES BEFORE STARTING ANY WORK.
11. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
12. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, PAVING, CURBS, GALVANIZED SURFACES, ETC., AND UPON COMPLETION OF WORK, REPAIR ANY DAMAGE THAT OCCURRED DURING CONSTRUCTION TO THE SATISFACTION OF THE PROJECT MANAGER.
13. KEEP GENERAL AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. LEAVE PREMISES IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
14. CONTRACTOR TO PROVIDE COMPLETE SET OF AS BUILT DRAWINGS WITHIN 10 WORKING DAYS OF PROJECT COMPLETION.

GENERAL CONTRACTOR NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE PROJECT SCOPE OF WORK DEFINED UNDER THE REQUEST FOR PROPOSAL (RFP) FOR THIS PROJECT AND ALL ASSOCIATED ATTACHMENTS AND DOCUMENTS PROVIDED.

THE RFP AND ALL ASSOCIATED DOCUMENTS SHALL DEFINE THE COMPLETE PROJECT SCOPE OF WORK. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL DOCUMENTS AND IS SOLELY RESPONSIBLE FOR ALL WORK.

ALL DOCUMENTS INCLUDED WITHIN THE PROJECT REQUEST FOR PROPOSAL ARE REQUIRED FOR THE COMPLETE PROJECT SCOPE OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK (EQUIPMENT, MATERIAL, INSTALLATION, TESTING, ETC.) INDICATED IN ALL DOCUMENTS. THE RFP, NETWORK STANDARDS AND PROJECT ADDENDUMS AND CLARIFICATIONS ARE COMPLEMENTARY TO EACH OTHER. THE FORMAT OF THE SPECIFICATIONS AND DRAWING NUMBERING PER DISCIPLINE IS NOT INTENDED TO IMPLY SEGREGATION OF SUB CONTRACTOR WORK. CONTRACTOR SHALL ASSIGN ALL SUB CONTRACTOR WORK AND WILL NOT ACCEPT ANY CHANGE ORDERS FOR INTERNAL CONTRACTOR WORK ASSIGNMENTS.

CONTRACTOR SHALL BE RESPONSIBLE FOR DISTRIBUTING ALL RFP DOCUMENTS TO THEIR SUB CONTRACTORS. ALL RFP DOCUMENTS ARE REQUIRED TO INDICATE THE PROJECT SCOPE OF WORK. PARTIAL SUB CONTRACTOR DOCUMENT PACKAGES ARE HIGHLY DISCOURAGED.

IN THE EVENT OF A CONFLICT BETWEEN THE DRAWINGS, SPECIFICATIONS, REFERENCED STANDARDS, STANDARDS, OR AGREEMENT TERMS AND CONDITIONS THE ARCHITECT/ENGINEER SHALL BE CONTACTED FOR FORMAL INTERPRETATION OF THE REQUIREMENTS. THE CONTRACTOR SHALL BE DEEMED TO HAVE PROVIDED THE DETAILED AND EXTENSIVE INTERPRETATION. ANY WORK INSTALLED IN CONFLICT WITH THE ARCHITECT/ENGINEER INTERPRETATIONS SHALL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO INT.
2. ALL ANTENNAS MUST BE PIM TESTED WITHIN 48 HOURS OF THEM BEING RECEIVED BY THE INSTALLATION CONTRACTOR. THOSE RESULTS MUST BE SENT BACK TO THE EXTENET CONSTRUCTION MANAGER AND EQUIPMENT ENGINEER WITHIN THE SAME 48 HOURS. IF YOU MISS THE 48HR TIMELINE AND THE ANTENNAS DO NOT PASS UPON INSTALLATION, YOUR COMPANY WILL BE CHARGED FOR THE COST OF THE ANTENNAS FOR REPLACEMENT.
3. ALL LOADS MUST BE SECURED PROPERLY TO THE VEHICLE OR TRAILER. EXTENET WILL PASS ALONG THE COST OF ANY REPLACEMENTS DUE TO DAMAGE OR LOSS WHETHER IT IS NEW OR USED.

STRUCTURAL DESIGN CRITERIA:

ALL LOADS DERIVED FROM REQUIREMENTS OF INTERNATIONAL BUILDING CODE 2015, ASCE 7-10, "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES" & ANSI TIA-222-G "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS".

BUILDING STRUCTURES:

1. WIND LOADS: IBC 2015 §1609 & ASCE 7-10 §28.4 (SIMPLIFIED METHOD)
 $V_{ult} = 115 \text{ MPH (3-SEC. GUST)}$
OCCUPANCY CAT. = II; EXPOSURE CAT. = C; IMPORTANCE FACTOR = 1.0
2. SEISMIC LOADS: IBC 2015 §1613 & ASCE 7-10 §12.14 (SIMPLIFIED METHOD)
OCCUPANCY CAT. = II; SITE CLASS = D
 $V = \frac{F(S_{ps})W}{R}$
 $F = 1.0 \text{ (SINGLE-STORY), } 1.1 \text{ (TWO STORY), } 1.2 \text{ (THREE STORY)}$
 $S_{ps} = (2/3) S_{ms}$
 $R = 1.5 \text{ (ORDINARY PLAIN CONCRETE SHEARWALLS),}$
 $6.5 \text{ (LIGHT-FRAMED WALLS W/ WOOD STRUCTURAL PANELS),}$
 $4.0 \text{ (ORDINARY REINFORCED CONCRETE SHEARWALLS)}$

COMMUNICATIONS STRUCTURES:

1. WIND LOADS: IBC 2015 §1609, ASCE 7-10 §29.5 & ANSI TIA-222-G
 $V_{ult} = 115 \text{ MPH (3-SEC. GUST)}$
 $V = 40 \text{ MPH (0" RADIAL ICE)}$
STRUCTURE CLASS. = II; EXPOSURE CAT. = C; IMPORTANCE FACTOR = 1.0
2. SEISMIC LOADS: IBC 2015 §1613, ASCE 7-10 §15.6.6 & ANSI TIA-222-G
STRUCT. CLASS. = II; OCC. CAT. = II; SITE CLASS = D; IMPORTANCE FACTOR = 1.0
 $V = \frac{S_{ds}(W)}{R}$ (EQUIVALENT LATERAL FORCE PROCEDURE (METHOD 1))
 $V = \frac{\sum S_{oz}(W_z)}{R}$ (EQUIVALENT MODAL ANALYSIS PROCEDURE (METHOD 2))

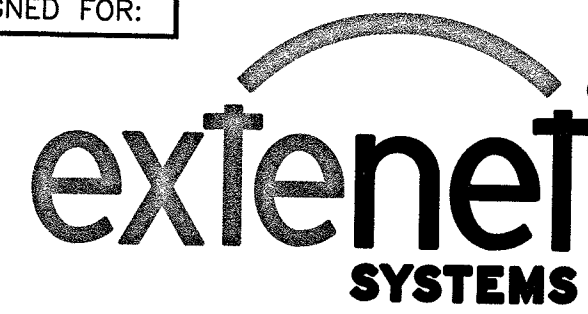
CONSTRUCTION NOTES:

1. ELEVATIONS ARE NORTH AMERICAN VERTICAL DATUM 1988.
2. NO SURVEY PERFORMED; SITE MAPPING ONLY.
3. THE ENGINEER AND REPRESENTATIVES OF THE OWNER, MUST BE NOTIFIED AT LEAST TWO FULL DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION AT (702) 367-7705.
4. DO NOT EXCAVATE OR DISTURB BEYOND THE PROPERTY LINES OR LEASE LINES, UNLESS OTHERWISE NOTED.
5. DO NOT SCALE BUILDING DIMENSIONS FROM DRAWINGS.
6. ANY DRAIN AND/OR FIELD TILE ENCOUNTERED DURING CONSTRUCTION SHALL BE RETURNED TO ITS ORIGINAL CONDITION PRIOR TO COMPLETION OF WORK. SIZE, LOCATION AND TYPE OF ANY UNDERGROUND UTILITIES OR IMPROVEMENTS SHALL BE ACCURATELY NOTED AND PLACED ON AS-CONSTRUCTED DRAWINGS BY GENERAL CONTRACTOR AND ISSUED TO ARCHITECT/ENGINEER AT COMPLETION OF PROJECT.
7. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS, AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ARCHITECT/ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATSOEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL EXISTING UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING EXISTING UTILITIES.
8. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHOULD BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS/HER OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL LOCAL DIGGER HOT LINE FOR UTILITY LOCATIONS 48 HOURS PRIOR TO START OF CONSTRUCTION.
9. ALL NEW AND EXISTING UTILITY STRUCTURES ON SITE AND IN AREAS TO BE DISTURBED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISH ELEVATIONS PRIOR TO FINAL INSPECTION OF WORK.
10. THE BUILDING DEPARTMENT ISSUING THE BUILDING PERMIT SHALL BE NOTIFIED AT LEAST TWO WORKING DAYS PRIOR TO THE COMMENCEMENT OF WORK OR AS STIPULATED BY THE CODE ENFORCEMENT OFFICIAL HAVING JURISDICTION.
11. CONTRACTOR SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, WEEDS, BRUSH OR ANY OTHER DEPOSITS WILL REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE DISPOSED OF OFF-SITE BY THE GENERAL CONTRACTOR.
12. DRIVEWAY CONSTRUCTION, GRADING AND DRAINAGE WORK SHALL CONFORM TO NEVADA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATION FOR THE ROAD AND BRIDGE CONSTRUCTION", LATEST EDITIONS, AND ALL APPLICABLE PROVISIONS OR LOCAL COUNTY ORDINANCES.
13. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY GENERAL CONTRACTOR WITH LOCAL UTILITY COMPANY, TELEPHONE COMPANY, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.

ANTENNA, MOUNTS & HARDWARE INSTALLATION NOTES:

1. CONTRACTOR TO INSTALL ANTENNAS, MOUNTS AND TOWER HARDWARE PER MANUFACTURER'S RECOMMENDATIONS (OR AS REQUIRED BY THE OWNER/PROVIDER).
2. ALL BOLTS SHALL BE TIGHTENED PER AISC REQUIREMENTS (SEE STEEL NOTES).
3. ANY GALVANIZED SURFACES THAT ARE DAMAGED BY ABRASIONS, CUTS, DRILLING OR FIELD WELDING DURING SHIPPING OR ERECTION SHALL BE TOUCHED-UP WITH TWO COATS OF COLD GALVANIZING COMPOUND MEETING THE REQUIREMENTS OF ASTM A780.
4. ANTENNA MOUNTS SHALL NOT BE USED AS A CLIMBING DEVICE. WORKERS SHALL ALWAYS TIE OFF TO AN APPROVED CLIMBING POINT.
5. SEE ALSO GENERAL ANTENNA NOTES ON SHEET RF1 (IF APPLICABLE).

DESIGNED FOR:

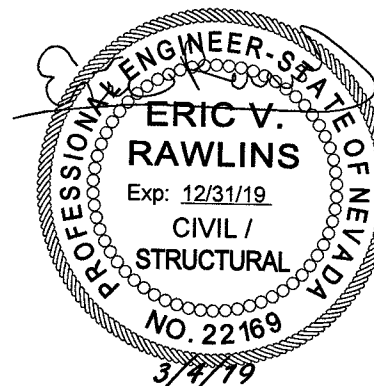


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J5 INFRASTRUCTURE PARTNERS
AZ - CA - CO - D - NM - NV - TX - UT

DESIGNED BY:

REV	DESCRIPTION	DATE	CHK	BY	DATE	CHK	BY
0	APPROVED FOR CONSTRUCTION	11/14/18	SB	EV			
1	REVISED PER CURRENT FRANCHISE AGREEMENT	03/04/19	SB	EV			



PROJECT NAME:

SW-NV-LVSTRI-00040
VG90XS323

METAL NODE POLE
SMALL CELL
INSTALLATION PROJECT

PROJECT ADDRESS:

APPROX. 508 SAN PABLO DR
LAS VEGAS, NEVADA 89104
CLARK COUNTY

SHEET TITLE:

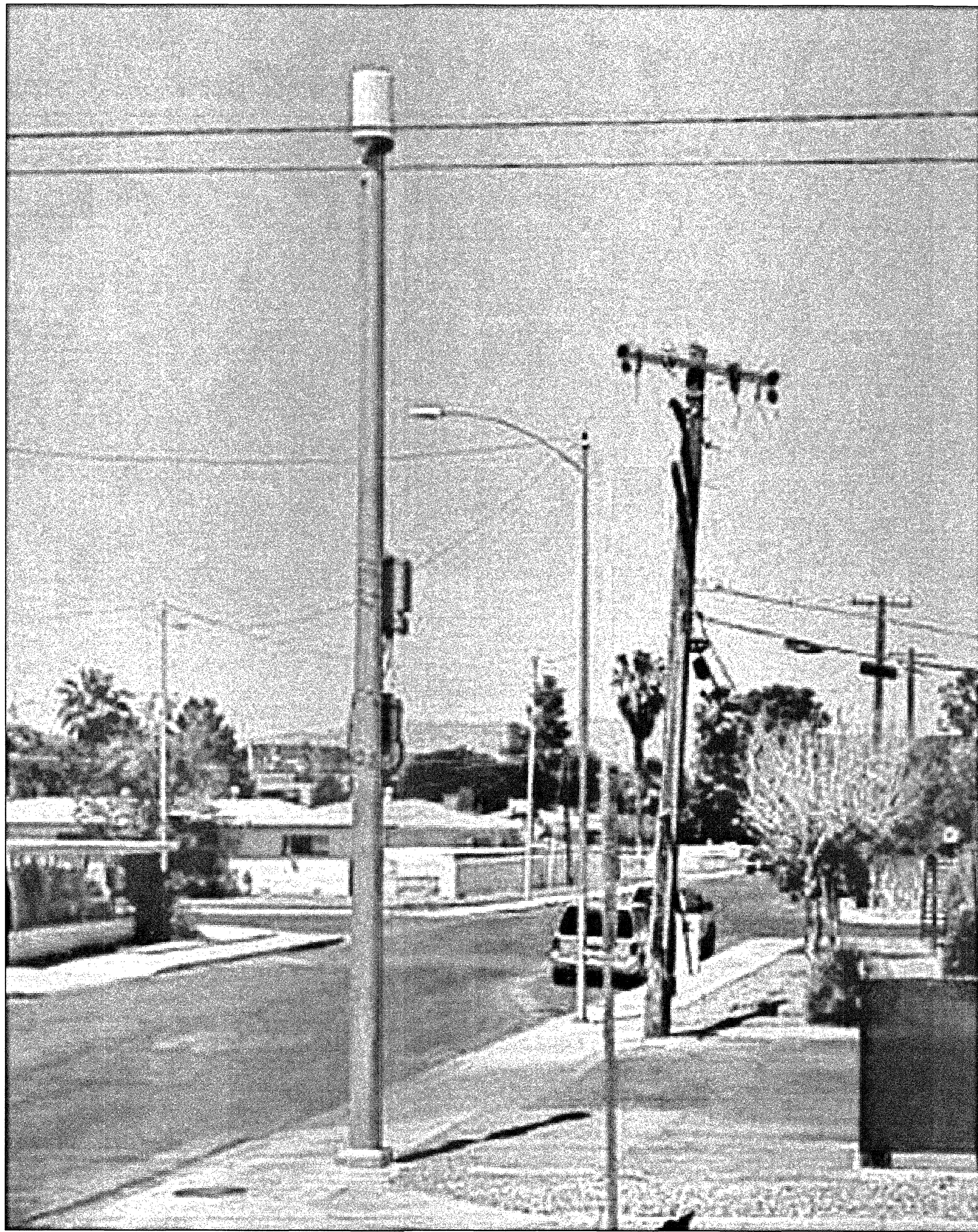
SPECIFICATION SHEET

SAVE DATE:

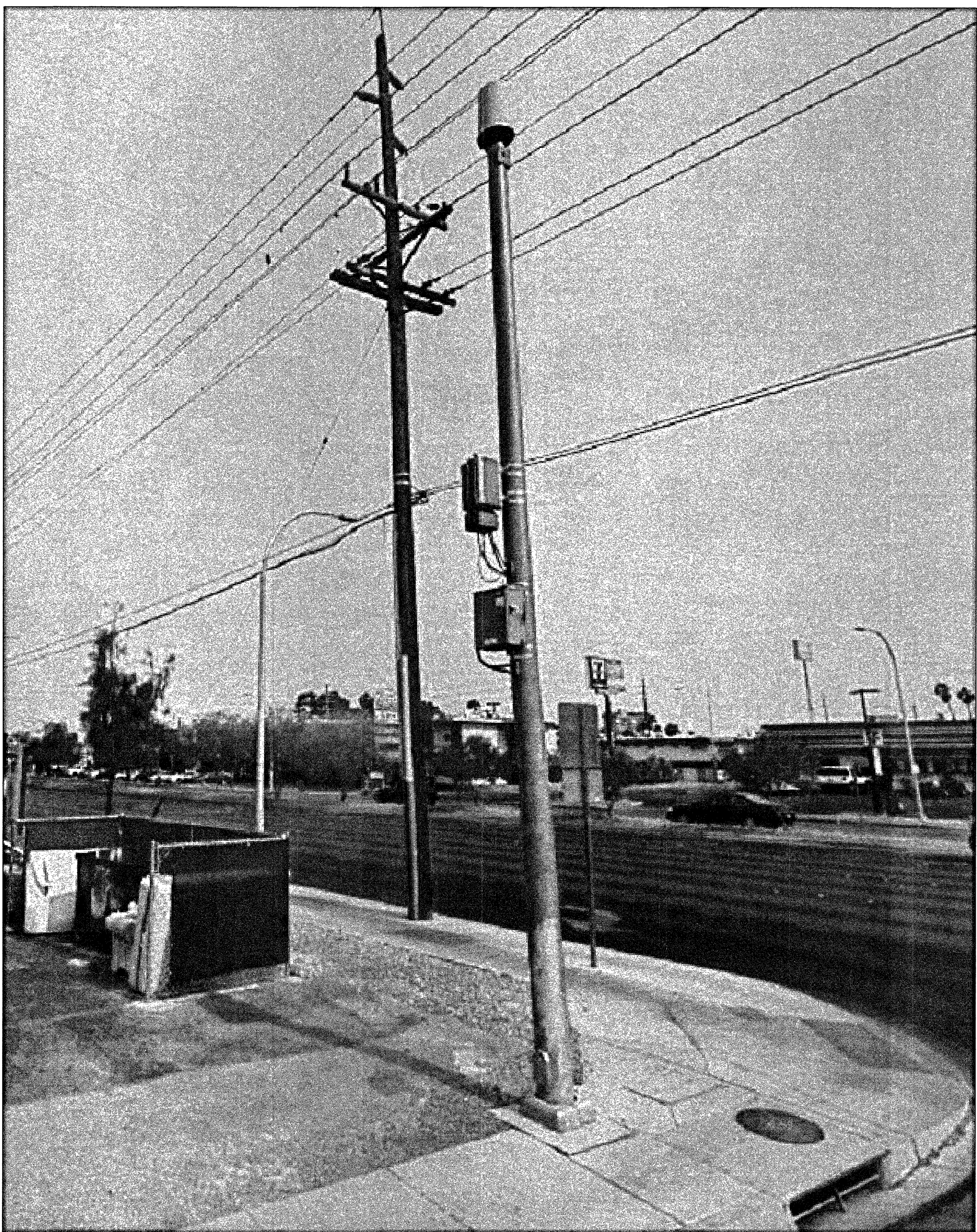
3/4/2019 11:51 AM

SHEET NUMBER:

SP1



SITE PHOTO LOOKING NORTH



SITE PHOTO LOOKING SOUTHEAST

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PROJECT NAME:

SW-NV-LVSTRI-00040 VG90XS323

METAL NODE POLE SMALL CELL INSTALLATION PROJECT

PROJECT ADDRESS:

APPROX. 508 SAN PABLO DR LAS VEGAS, NEVADA 89104 CLARK COUNTY

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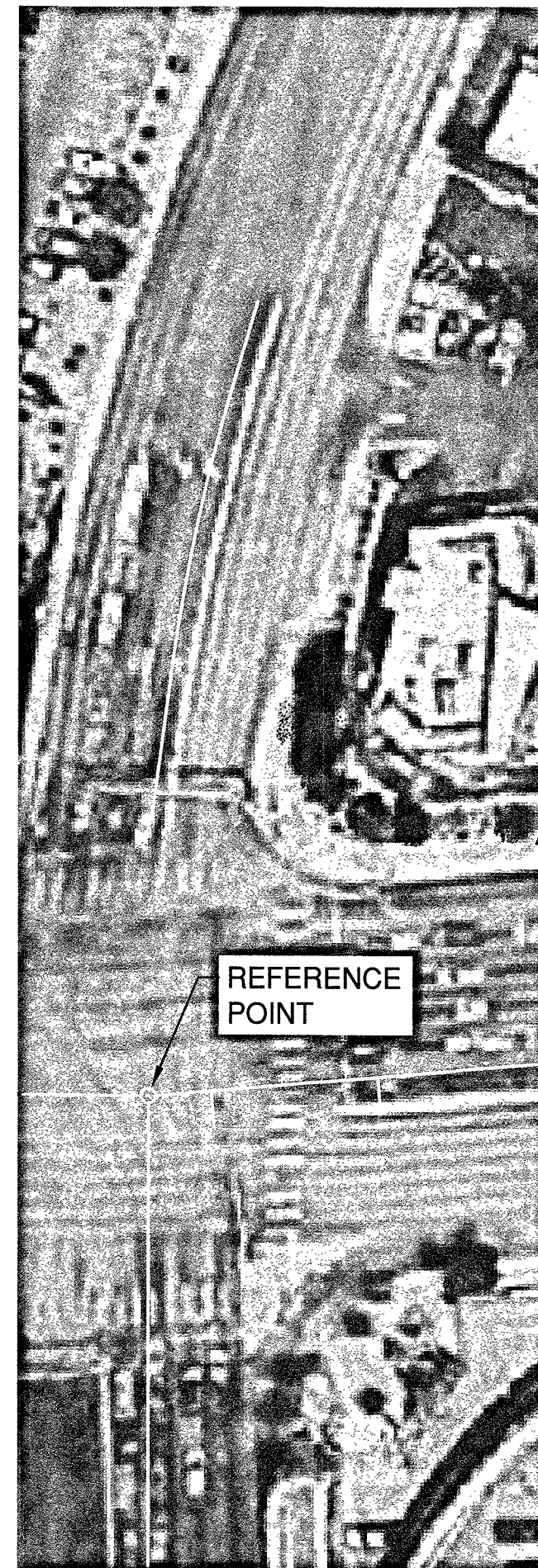
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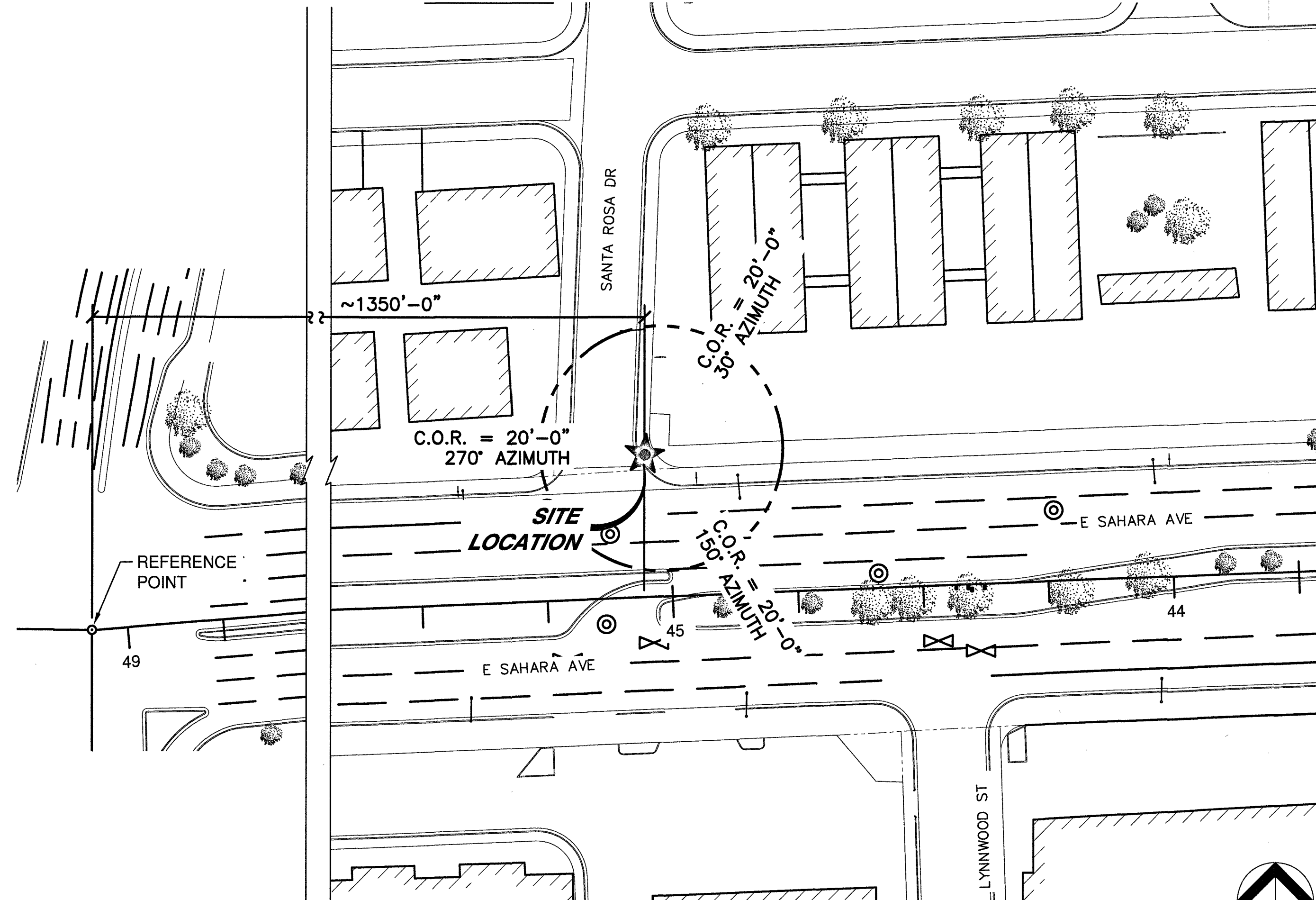
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SHEET NUMBER:

PS1



AERIAL PLAN
SCALE: 1"=100'-0"



SITE PLAN
SCALE: 1"=100'-0"

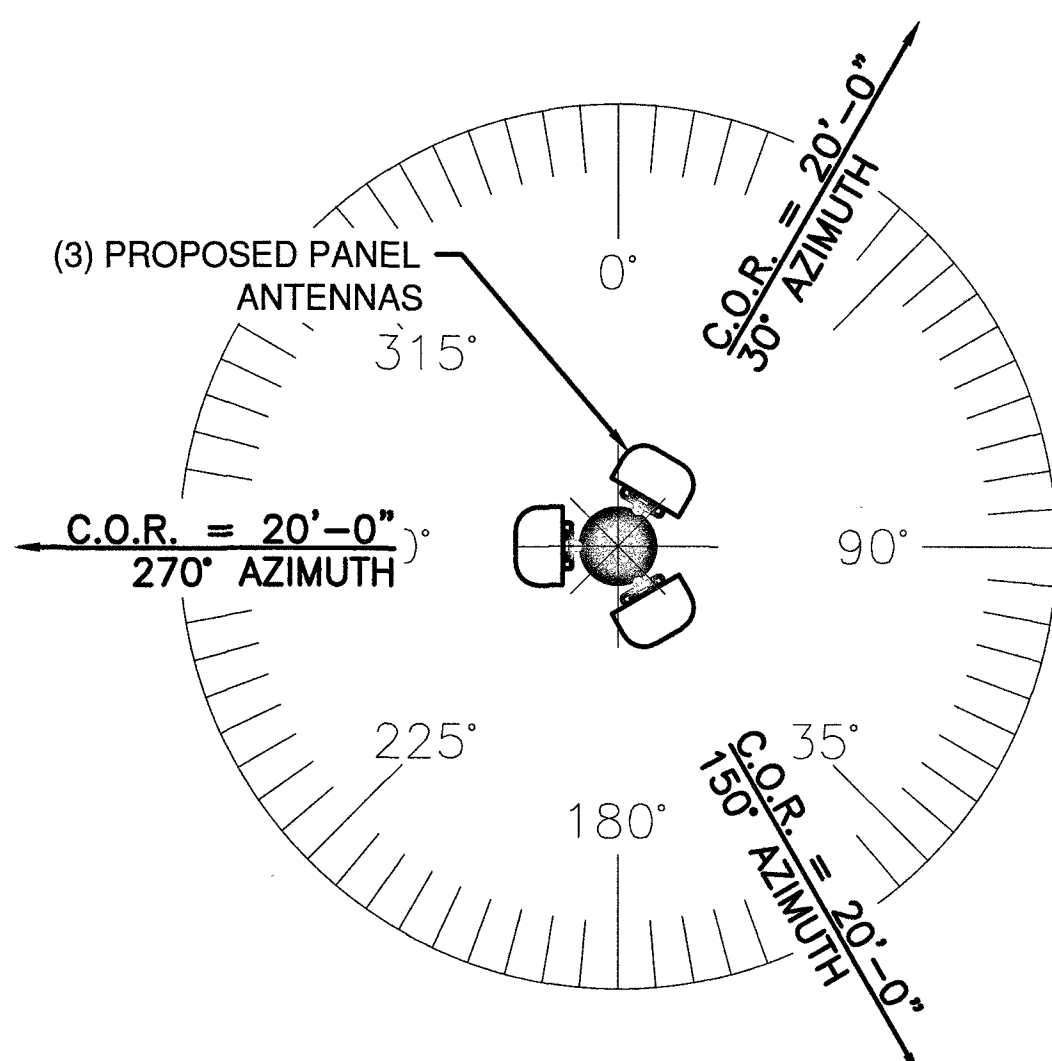


PROPOSED LESSEE ANTENNA SCHEDULE:

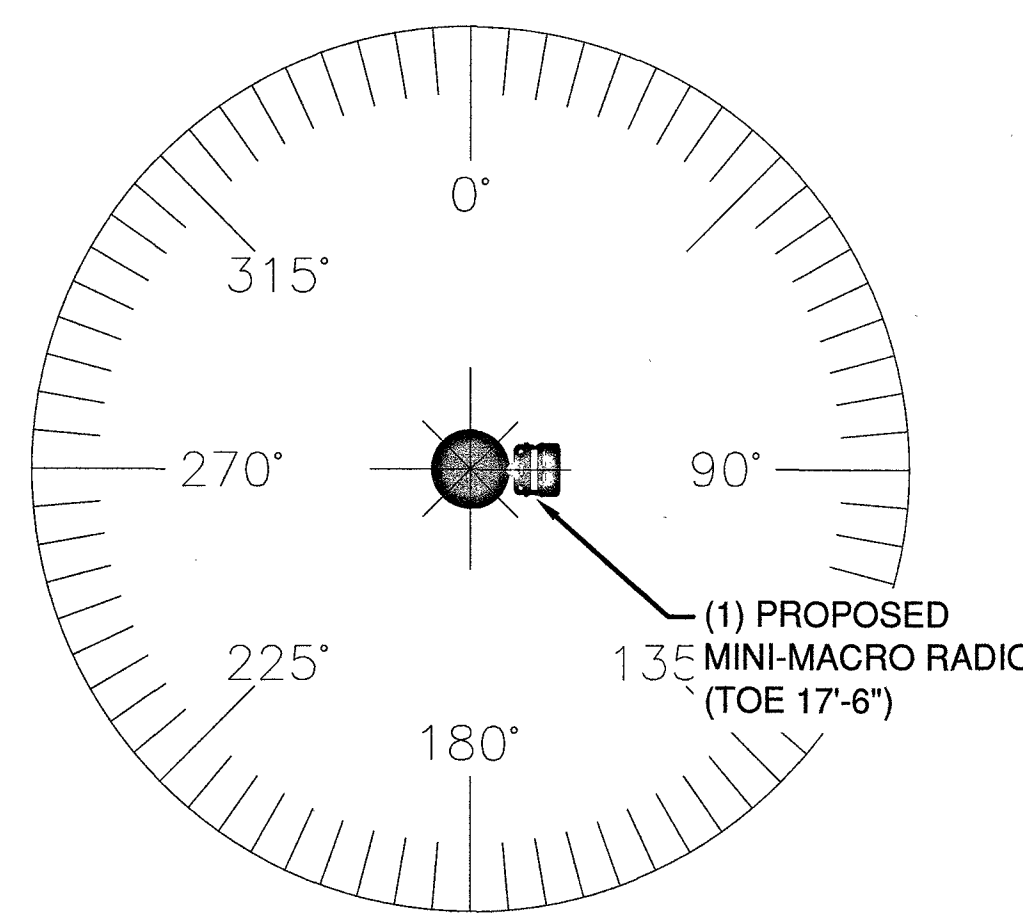
ATTACH LEVEL (COR)	AZIMUTHS (DEG., TN)	ANTENNA TYPE	ANTENNA QUANTITY	MOUNT TYPE	COAX (QUANTITY) SIZE (NOMINAL)	ESTIMATED COAX CABLE LENGTH	MECHANICAL DOWN TILT
20'-0"	30° 150° 270°	RFS APXV23-276512-C 2' PANEL ANTENNA	3	SEE ANTENNA MOUNT SCHEDULE	(6) 1/4" HELIAX COAX	~60' (EACH)	REFER TO RFDS

PROPOSED LESSEE EQUIPMENT SCHEDULE:

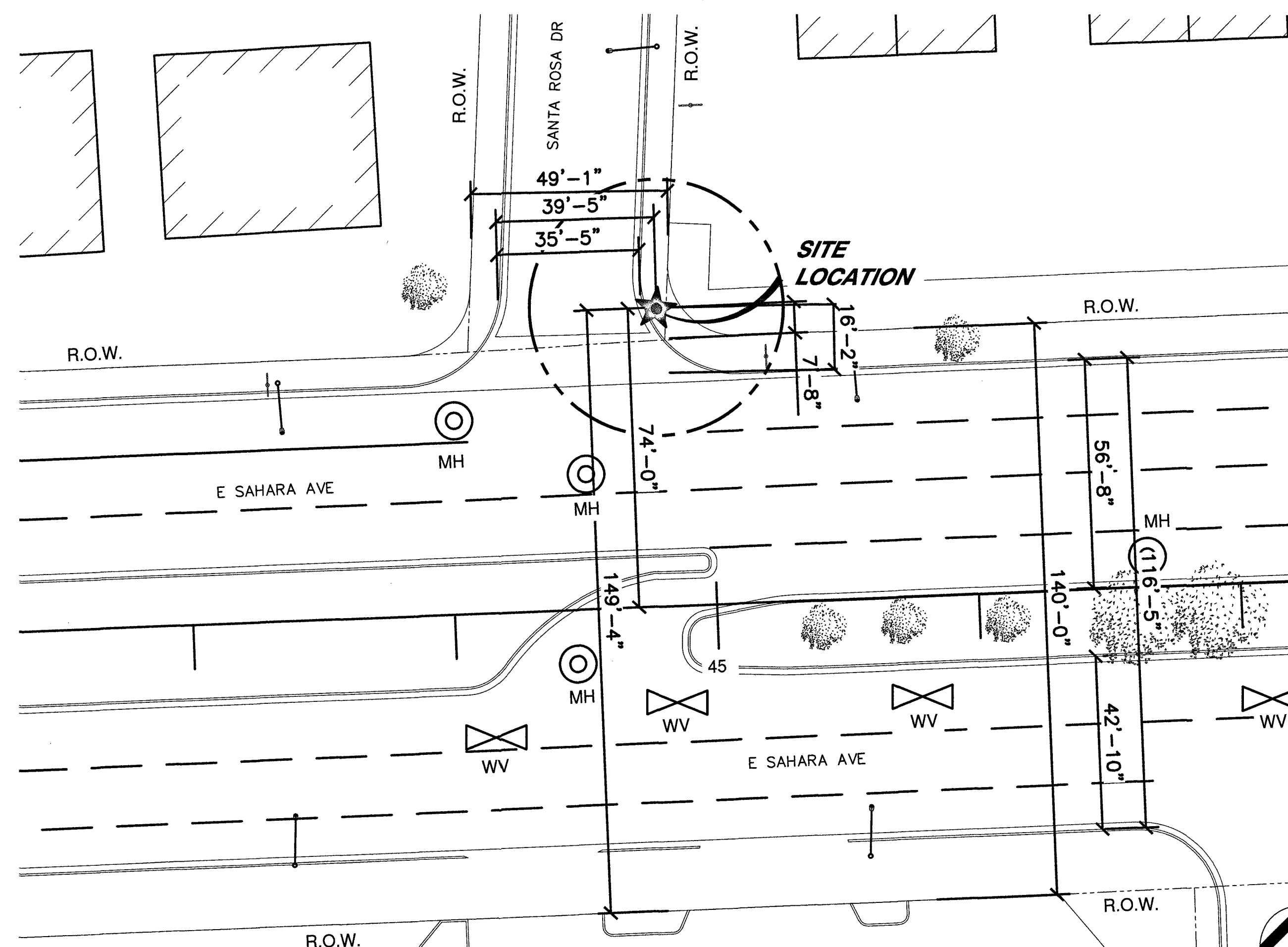
EQUIPMENT TYPE	QUANTITY	MOUNT TYPE	COAX (QUANTITY) SIZE (NOMINAL)	ESTIMATED COAX CABLE LENGTH	MECHANICAL DOWN TILT
NOKIA MINI-MARCO RADIO (2X20W)	1	ANTENNA BANDS	(2) 1/4" HELIAX COAX	~20' (EACH)	REFER TO RFDS



PROPOSED SECTION @ 20'-0"
SCALE: N.T.S.



PROPOSED SECTION @ 17'-6"
SCALE: N.T.S.



ENLARGED SITE PLAN
SCALE: 1"=50'-0"



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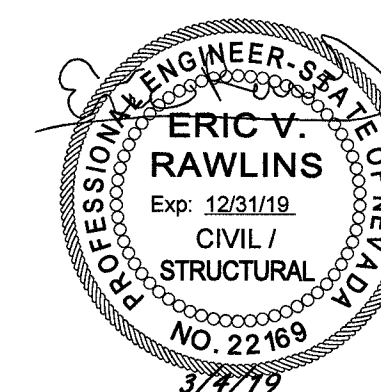
extenet
SYSTEMS

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J5 INFRASTRUCTURE PARTNERS
AZ - CA - CO - ID - NM - NW - TX - UT

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PROJECT NAME:

SW-NV-LVSTRI-00040
VG90XS323

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SMALL CELL
INSTALLATION PROJECT

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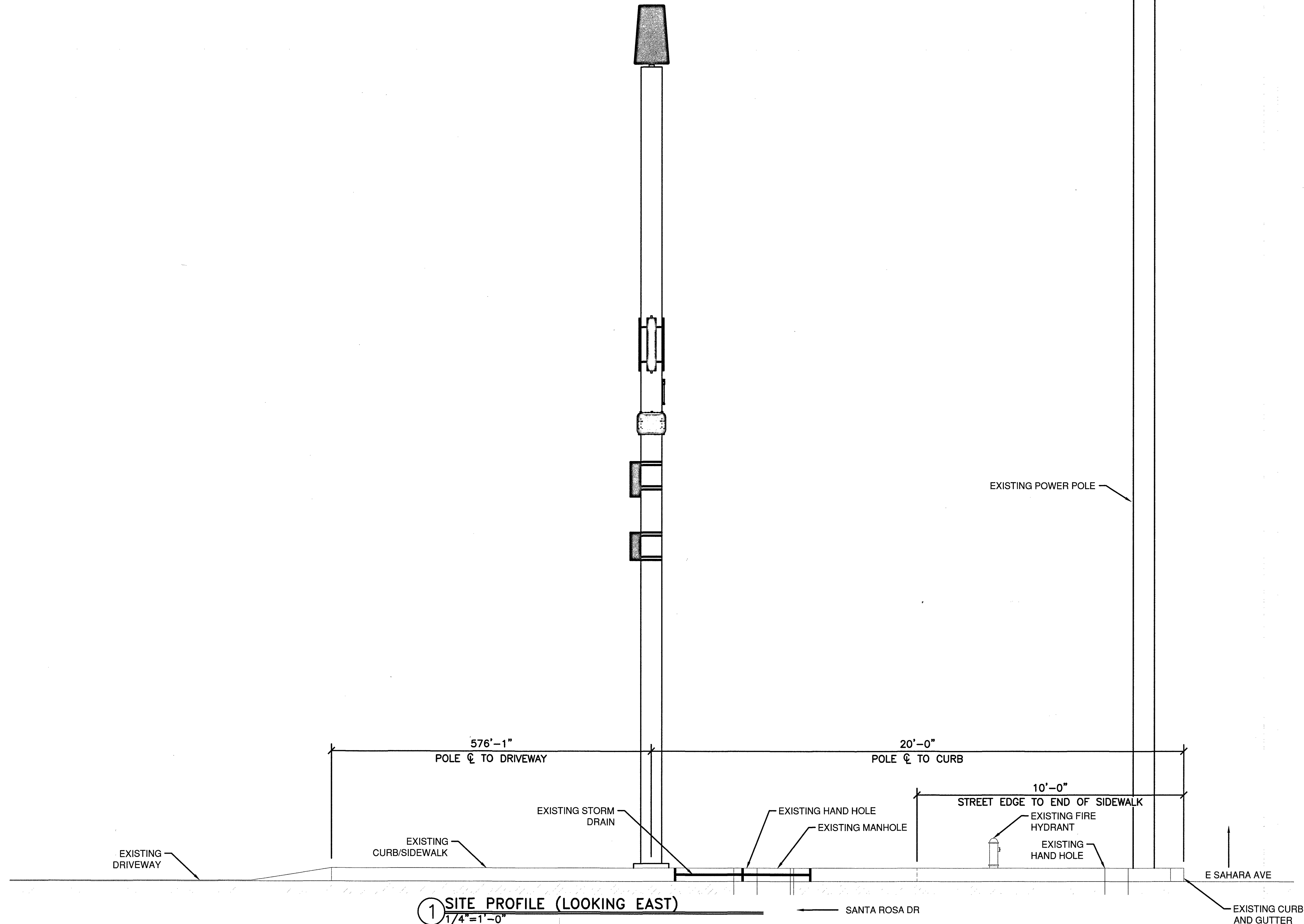
SITE PLANS &
EQUIPMENT SECTIONS

SAVE DATE:

3/4/2019 11:51 AM

SHEET NUMBER:

C1



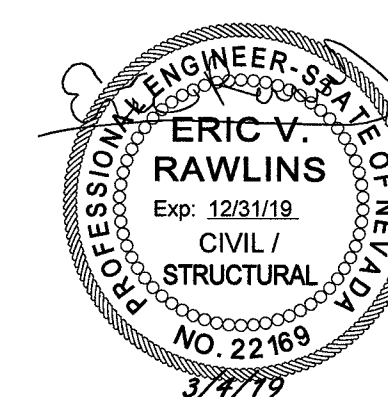
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extenet
SYSTEMS

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PARTNERS
AZ-CA-CO-ID-NM-NW-TX-UT

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SITE PROFILE

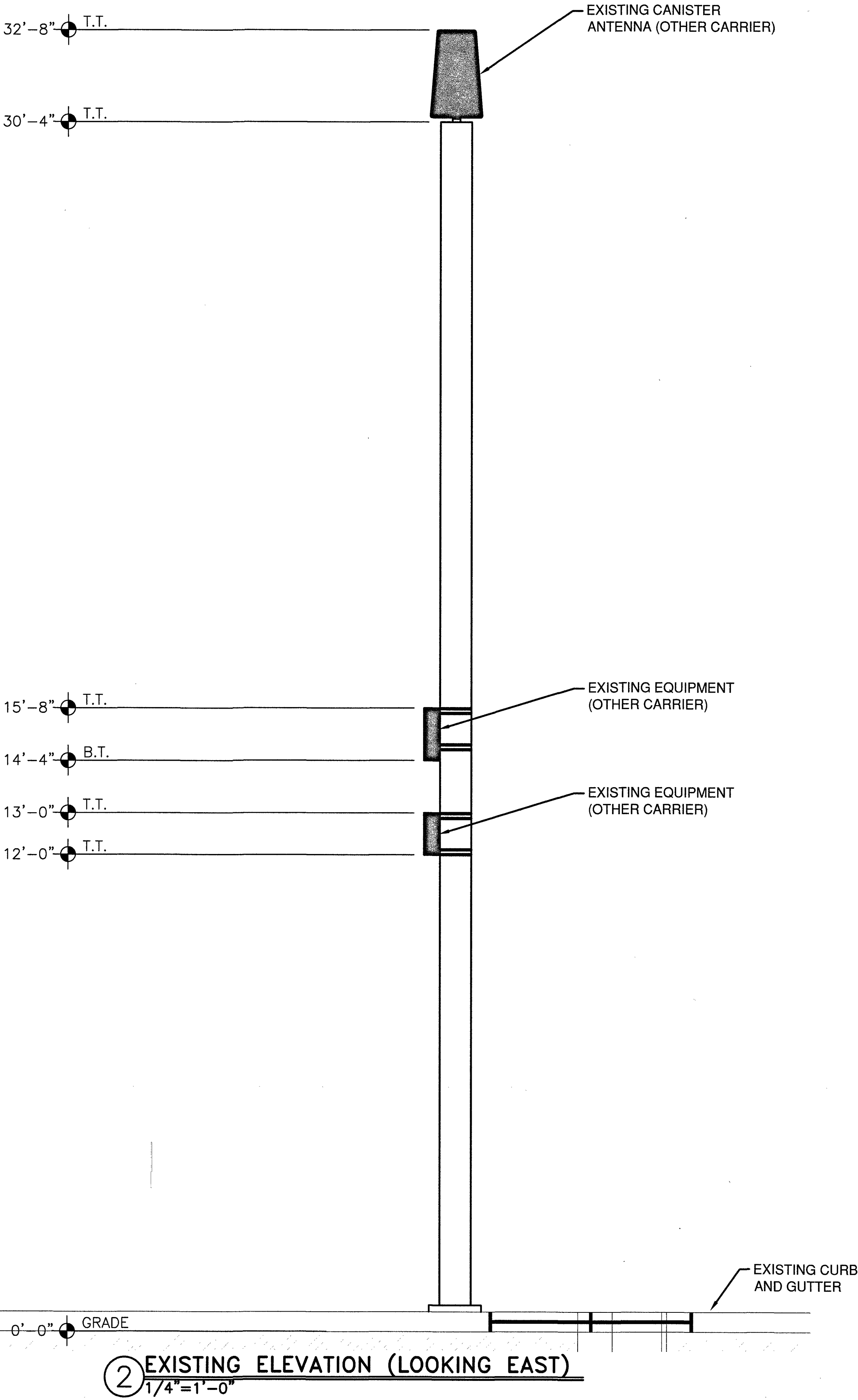
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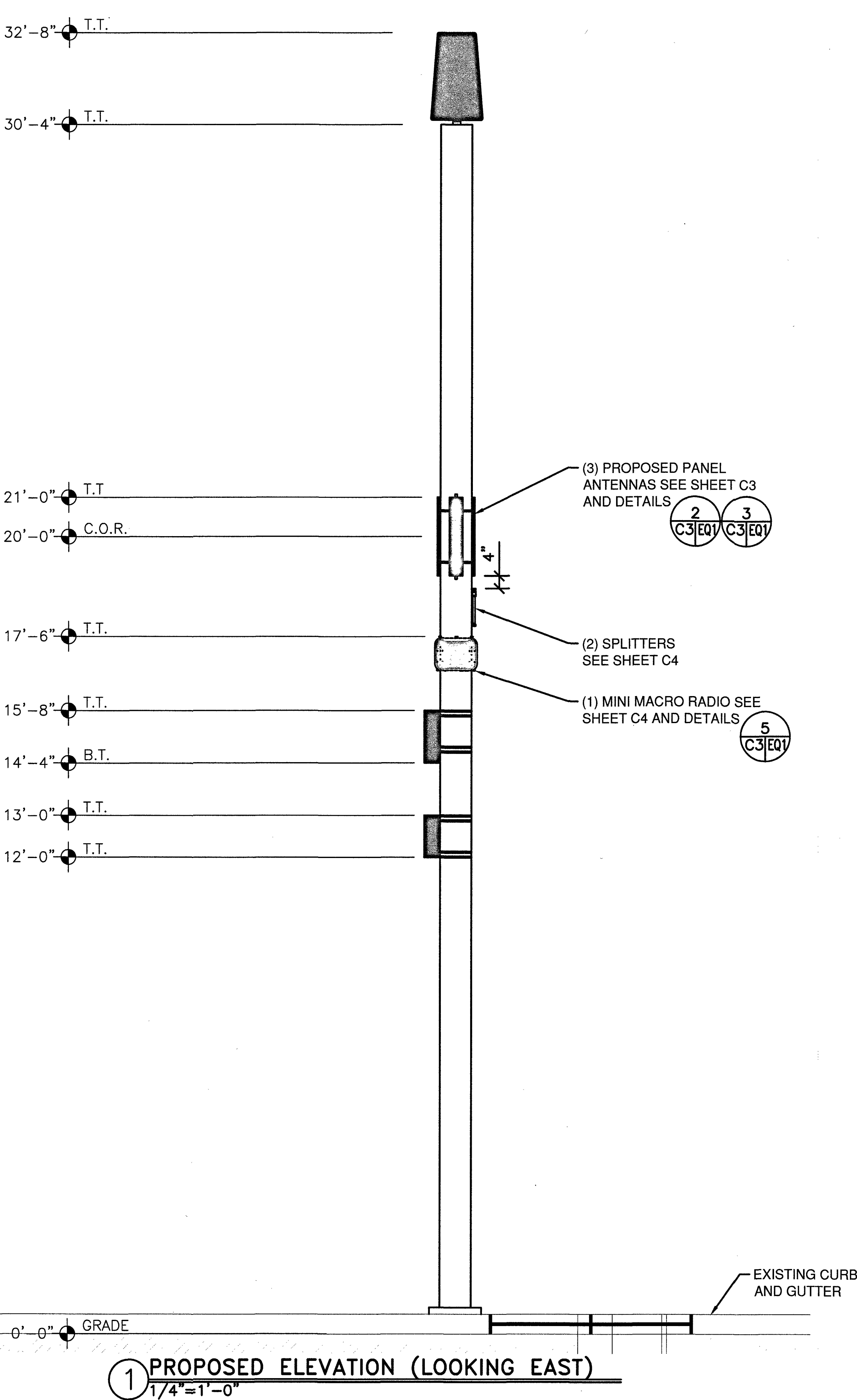
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SPECIAL NOTE:
INFORMATION SHOWN BELOW IS BASED ON LIMITED DATA PROVIDED BY EXTENET. CONFIRMATION OF THE EXISTING STRUCTURE, ANTENNAS AND ALL RELEVANT APPURTENANCES IS BEYOND THE SCOPE OF THIS PROJECT.



DISCLAIMER:
ALL INFORMATION PERTAINING TO THE EXISTING TOWER AND ANTENNA MOUNTS SHOWN ARE FOR DEPICTION PURPOSES ONLY. CONFIRMATION OF THE TOWER STRUCTURAL INTEGRITY IS BEYOND THE SCOPE OF THIS PROJECT. IN NO EVENT WILL J5 INFRASTRUCTURE PARTNERS BE LIABLE AND RESPONSIBLE FOR THE STRUCTURAL INTEGRITY AND ADEQUACY OF THE TOWER AND FOUNDATION WITHOUT FIRST REQUIRING STRUCTURAL ANALYSIS PRIOR TO THE INSTALLATION OF ANY NEW ANTENNAS, AND ALL RELEVANT APPURTENANCES.



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AZ - CA - CO - ID - NM - NV - TX - UT

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APPROX. 508 SAN PABLO DR
LAS VEGAS, NEVADA 89104
CLARK COUNTY
SHEET TITLE:
EXISTING & PROPOSED
ELEVATIONS
SAVE DATE:
3/4/2019 11:51 AM
SHEET NUMBER:
C3

PRODUCT DATASHEET
APXV23-276512-C

RADIO FREQUENCY SYSTEMS
The Clear Choice®

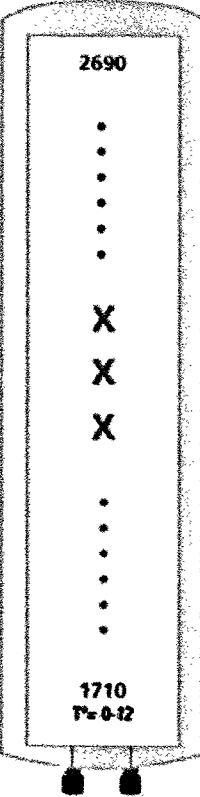


Cellular Cross Polarized High Band Antenna 2300-2700, 60deg, 14.8dBi, 0.5m, VET, 0-10deg

This antenna is an excellent choice for LTE and WiMAX networks where high gain is required.

FEATURES / BENEFITS

- Variable electrical downtilt — provides enhanced precision in controlling intercell interference. The tilt is infield adjustable 0-10 deg.
- High vertical beamwidth — suitable for small cells application
- Optional remote tilt — can be retrofitted
- Dual polarization
- Low profile for low visual impact
- Quick and easy to adjust
- High front-to-back ratio



Technical Features

ELECTRICAL SPECIFICATIONS

Frequency Range	MHz	2300-2700
Gain	dBi (dBd)	14.8 (12.7)
Horizontal Beamwidth	deg	60
Vertical Beamwidth	deg	15.5
Electrical Downtilt Range	deg	0-10
Upper Sidelobe Suppression	dB	18 Typical
Front-To-Back Ratio	dB	> 30
Polarization		Dual pol +/-45°
VSWR		< 1.5:1
Isolation between Ports	dB	>30
3rd Order IMP @ 2 x 43 dBm	dBc	> 150
Impedance	Ohms	50.0
Maximum Power Input	W	250.0

MECHANICAL SPECIFICATIONS

Lightning Protection		Direct Ground
Connector Type/Location		(2) 7-16 Long Neck Female/Bottom
Dimensions - HxWxD	mm (in)	560 x 175 x 110 (22.0 x 6.9 x 4.3)
Weight w/o Mtg Hardware	kg (lb)	3.3 (7.3)
Weight w/ Mtg Hardware	kg (lb)	6.7 (14.8)
Survival/Rated Wind Speed	km/h (mph)	200 (125) / 160 (100)
Wind Load @ Rated Wind, Front	N (lbf)	130 (29.2) 130
Wind Load @ Rated Wind, Side	N (lbf)	50 (11.2)
Wind Load @ Rated Wind, Rear	N (lbf)	90 (20.2)

TESTING AND ENVIRONMENTAL

Operation temperature	°C (°F)	-40 to 60 (-40 to 140)
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MATERIAL		
Radome Material/Color		ASA Plastic/Light Grey RAL7035
Mounting Hardware Material		Diecasted Aluminum and Stainless Steel
Radiating Element Material		Aluminum
Reflector Material		Aluminum

ORDERING INFORMATION

Mounting Hardware		APM40-4
Mounting Pipe Diameter	mm (in)	60 - 120 (2.36 - 4.72)
Mounting Hardware Weight	kg (lb)	2.7 (5.95)

APXV23-276512-C

REV: A1

REV DATE: 05.05.2011

www.rfsworld.com

All information contained in the present datasheet is subject to confirmation at time of ordering

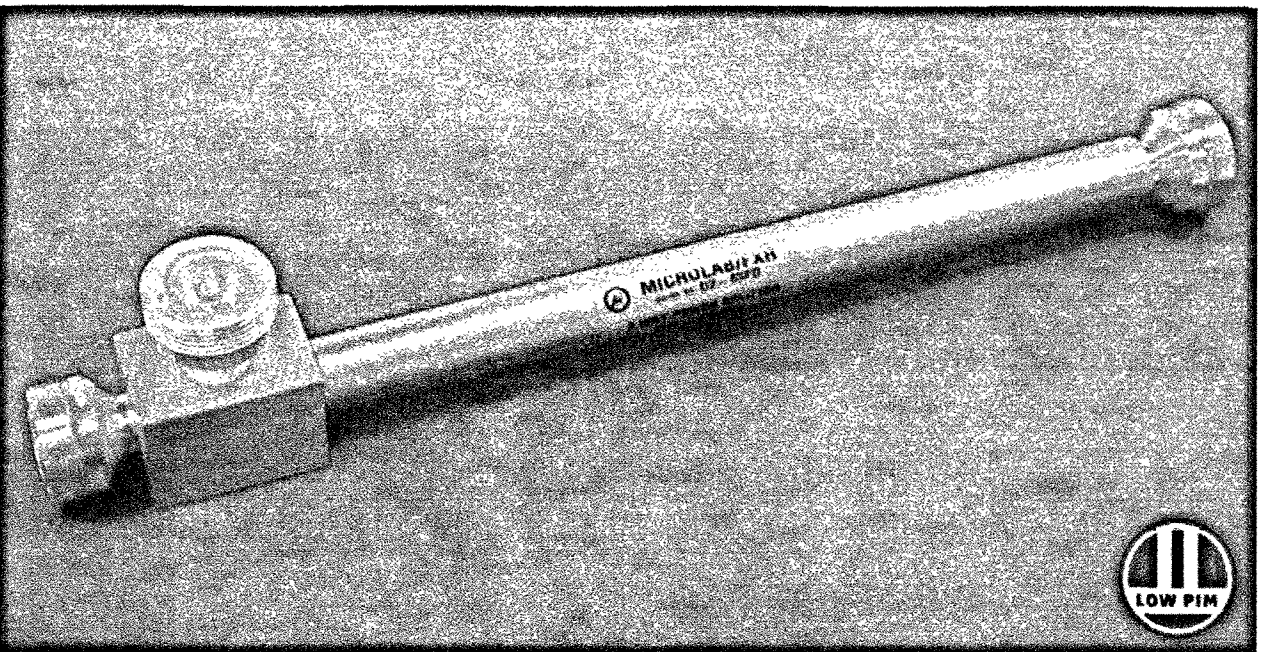
Page 1 of 2



Power Splitters, Dx-85FD series

2, 3 & 4 way Block & Tube Style, Reactive Dividers
Super wideband 698 - 2700 MHz, 7-16 mm DIN
Rev. C

- Multi-Band Frequency Ranges
Cellular, UMTS and WLAN
- 500 Watt Average Power
- Minimal RF Insertion Loss
- High Reliability
- IP67, RoHS compliant
- Low Specified PIM
- Low Cost, Low Weight Design

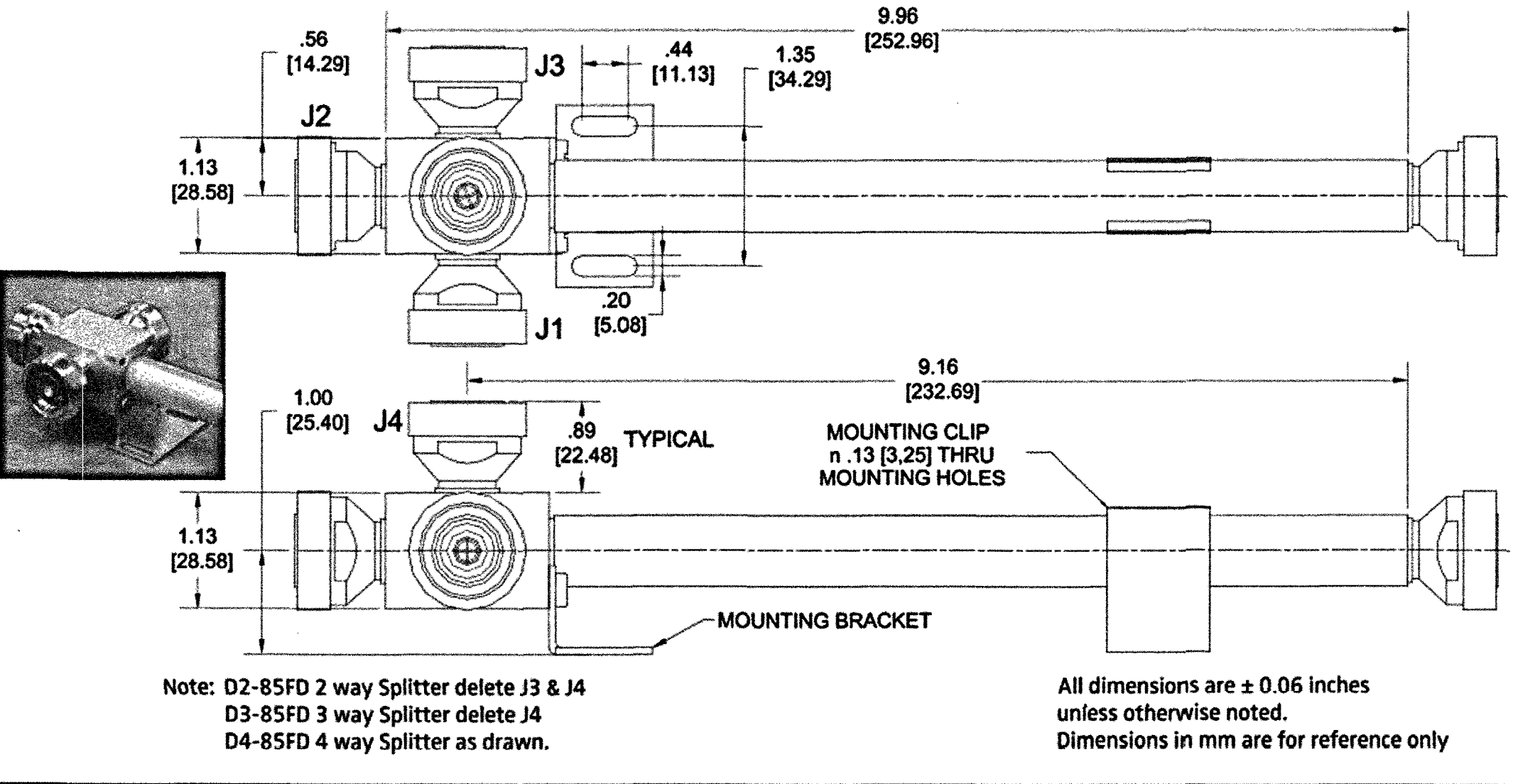


Microlab Model Dx-85FD series of 2, 3 and 4 way Power Splitters has been designed to evenly split high power cellular signals with minimal reflections and loss. Joints are moisture sealed with gaskets to meet IP67. The rugged, lightweight design can be easily attached to a wall with the supplied bracket and clip.

The wide frequency range allows use with multiband antennas and leaky cable systems. With few solder joints and an air dielectric, the loss is minimized and reliability enhanced. Units also available with N and 4.1-9.5 DIN connectors. (03/15)

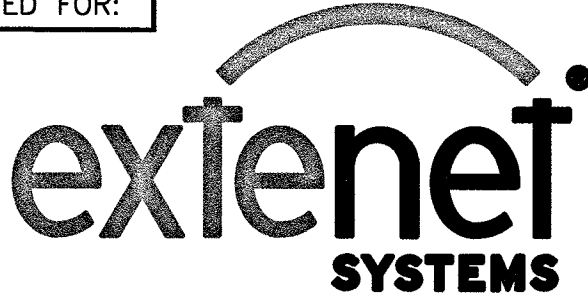
Impedance:	50Ω nominal
Power Rating:	500W avg, 3kW pk.
PIM, Passive IM:	-160 dBc typical, <-155 dBc guarantee (2 tones at +43 dBm)
Environment:	-35°C to +75°C, IP67 RoHS compliant
Finish: Connectors:	7-16 (f), Silver or triplate
Housing:	Passivated aluminum
Mounting:	Bracket and clip supplied

Model Number	No. of Ways	Frequency Band, MHz	Split Loss	Insertion Loss	Amplitude Balance, typ.	Input VSWR	Power Rating Avg Peak	Weight, nom. lbs. (kg)
D2-85FD	2	698 - 2700	3 dB	<0.05 dB	0.15dB	<1.15:1	500W 3 kW	0.85 (0.39)
D3-85FD	3	698 - 2700	4.8 dB	<0.05 dB	0.25dB	<1.15:1	500W 3 kW	1.00 (0.45)
D4-85FD	4	698 - 2700	6 dB	<0.05 dB	0.25dB	<1.25:1	500W 3 kW	1.15 (0.53)



Microlab, A Wireless Telecom Group Company, 25 Eastmans Road, Parsippany, NJ 07054
Tel: (973) 386-9696 • sales@microlab.fxr.com • www.microlab.fxr.com • Fax: (973) 386-9191

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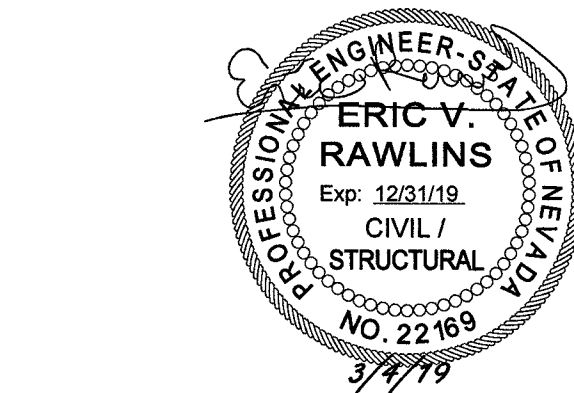


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AZ - CA - CO - ID - NM - NV - TX - UT

DESIGNED BY:



PROJECT NAME:

SW-NV-LVSTRI-00040
VG90XS323
METAL NODE POLE
SMALL CELL
INSTALLATION PROJECT

PROJECT ADDRESS:

APPROX. 508 SAN PABLO DR
LAS VEGAS, NEVADA 89104
CLARK COUNTY

SHEET TITLE:

EQUIPMENT
SPECIFICATIONS

SAVE DATE:

3/4/2019 11:51 AM

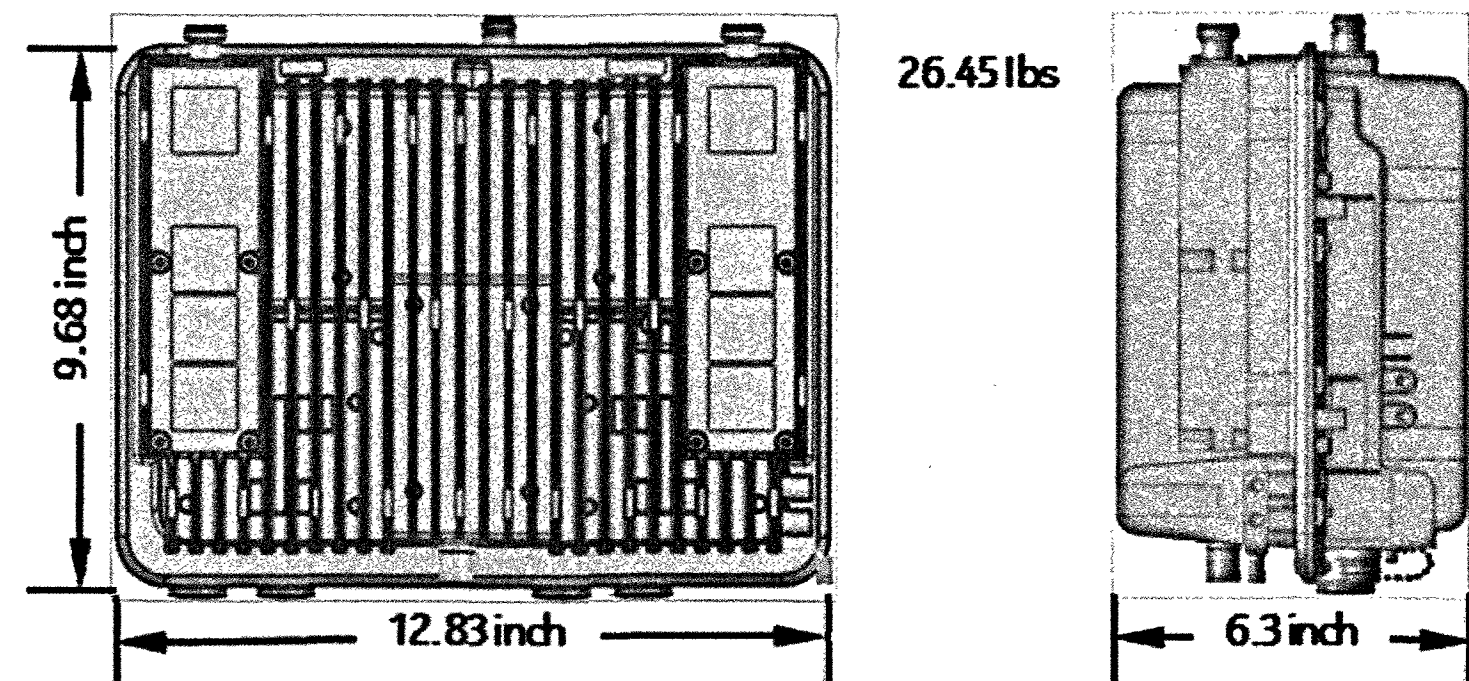
SHEET NUMBER:

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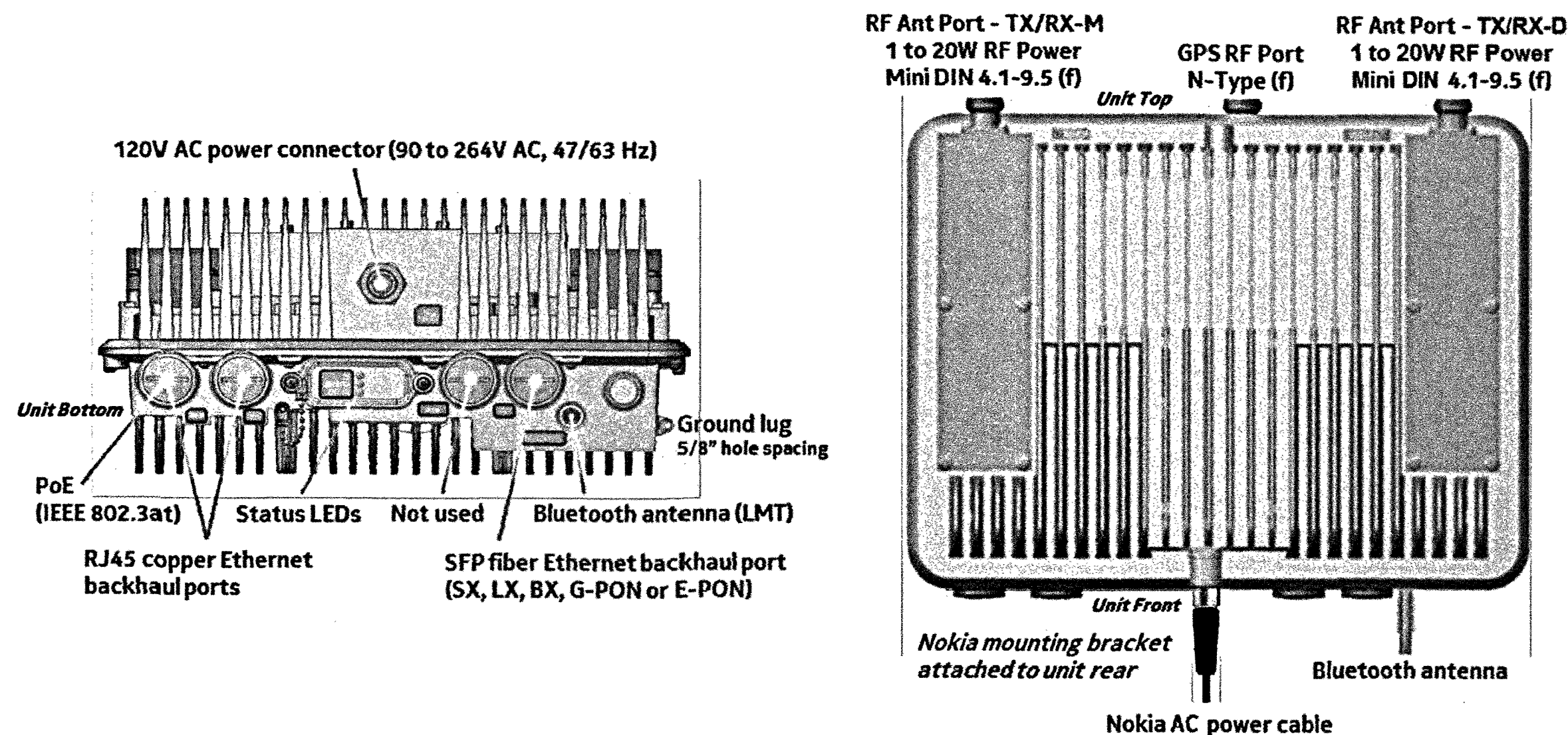
6000 Connection Drive, Irving, TX 75039
(972) 374 3000

NOKIA

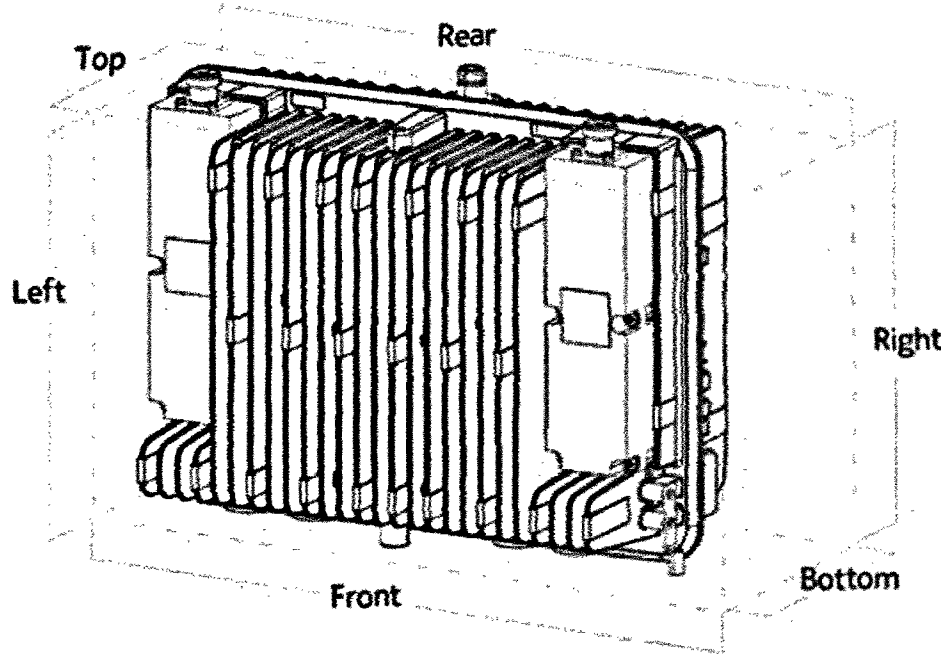
TD-LTE, Band 41, 2 x 20W Mini-Macro Radio (FWHR)



Radio Connections (FWHR)



Radio Clearances (FWHR)



BTS side	Minimum clearances	Recommended clearances
Front	50 mm (1.97 in)	500 mm (19.68 in)
Rear	35 mm (1.38 in) ⁽¹⁾	35 mm (1.38 in) ⁽¹⁾
Top	100 mm (3.94 in)	Height of the unit + 10 mm (0.39 in)
Bottom	100 mm (3.94 in)	300 mm (11.81 in)
Left	10 mm (0.39 in) ⁽²⁾	10 mm (0.39 in) ⁽²⁾
Right	10 mm (0.39 in)	10/110 mm (0.39/4.33 in) ⁽³⁾

⁽¹⁾ For wall and pole installations.

⁽²⁾ For horizontal pole installations the clearance must be at least 20 mm (0.78 in).

⁽³⁾ Depends on the screwdriver length.

02/16/16 v1

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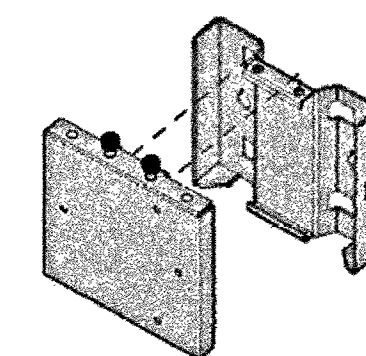
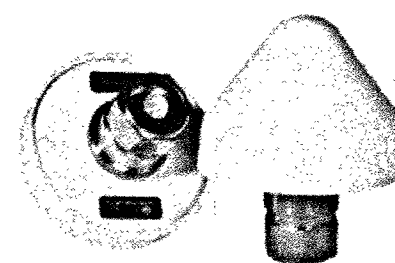
NOKIA

Radio Specifications (FWHT)

Description	Specification
Size/dimensions (HxWxD)	9.68 x 12.83 6.3 inch (246 x 326 x 160 mm)
Weight/mass & volume	26.45 lbs. (12 kg) & 10 L
Operational temperature range	-40°F - +131 °F (humidity: 5% to 95%)
Storage temperature range	-40°F - +158 °F
Cooling fans	None
Cold start capable	Yes
Ingress Protection Rating	IP65 (Outdoor rated)
AC input voltage range	90 - 264 V (47/63 Hz)
Power consumption, max	360W (including 25.5W for PoE)
FCC & UL approved	Yes
TD-LTE operating frequencies (Band 41)	Full band unit - UL/DL: 2496-2690 MHz Low band unit - UL/DL: 2496-2593 MHz High band unit - UL/DL: 2593-2690 MHz
# of supported LTE carriers	2
LTE Tx/Rx ports & type	2 x 4.1/9.5 Mini-DIN (f) - 2T2R / MIMO
LTE RF Tx output power	1 - 20W (each port)
Synchronization required	Integrated GPS using FAWD or ToP IEEE 1588v2
Backhaul method	1 Gigabit Ethernet, copper, RJ45, or 1 Gigabit Ethernet, fiber, SFP (various)
Power over Ethernet (PoE) port	Yes - IEEE 802.3at
Installation mounting method	Pole or wall (using Nokia mounting bracket, FMWA)
Seismic	Zone-4
Unit color	Telegray 4 (RAL7047)
Paintable	Yes (follow guidance)

Nokia GPS Antenna (FMWD)

Description	Specification
Operating frequency	1575.42 MHz
Antenna gain	26 dBi
Polarization	Right hand circular
Horizontal beamwidth	360°
Antenna port	N-type (m)
Weight	0.31 lbs (0.14 kg)



Nokia Wall and Pole Mounting Bracket (FMWA)

The width of the band straps should be less than 3/4" to properly fit into the slots of the Nokia mounting bracket.



AC Power Cable, 32' (10m), 18AWG (FPWO)

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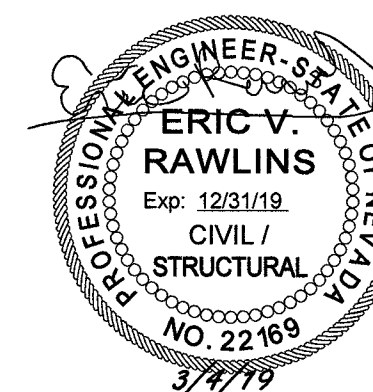
extenei
SYSTEMS

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J5 INFRASTRUCTURE PARTNERS
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DESIGNED BY:

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1	REVISED PER CURRENT FRANCHISE AGREEMENT	03/04/19	SB	EVR	



PROJECT NAME:

SW-NV-LVSTRI-00040
VG90XS323

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FAST
Call before you
UnderGround
1-702-432-5300
FREEWAY AND ARTERIAL
SYSTEM OF TRANSPORTATION

CALL BEFORE
YOU DO
OVERHEAD

AVOID CUTTING UNDERGROUND
UTILITY LINES. IT'S COSTLY.

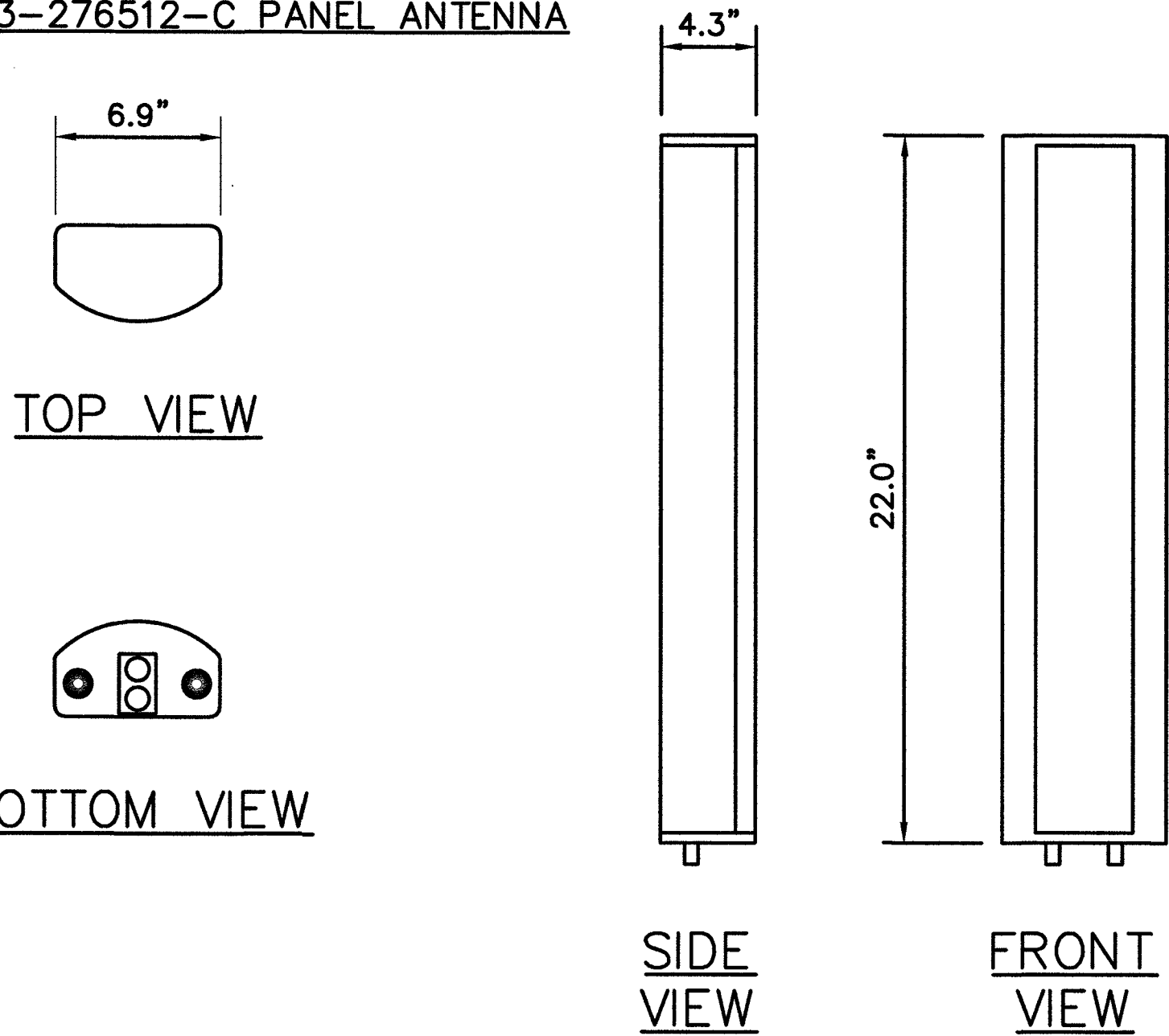
Call
811
OR
1-702-227-2929
1-800-227-2600

CONSTRUCTION NOTES

- A** PROPOSED MOUNTING BAND ON PROPOSED EXTENET POLE. SEE DETAIL 2, SHEET EQ1.
- B** PROPOSED CMRO RADIO CABINET ATTACHED TO POLE MOUNTING BRACKET ON PROPOSED EXTENET POLE (PER MANUFACTURER). SEE DETAIL 3, SHEET EQ1.

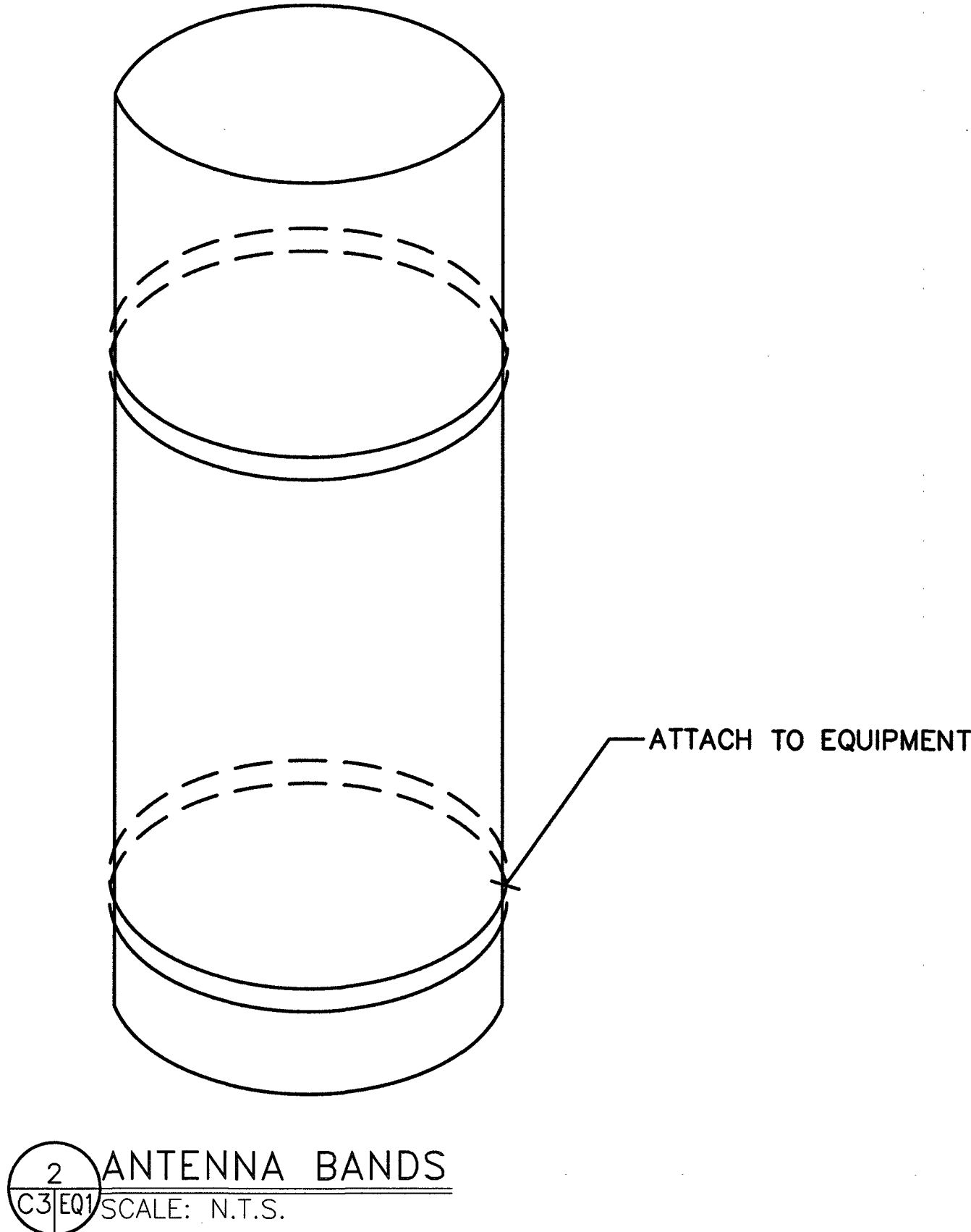
CAUTION NOTES
SCALE: N.T.S.

RFS APXV23-276512-C PANEL ANTENNA



1 ANTENNA DETAIL
C3|EQ1 SCALE: N.T.S. NET WEIGHT 14.8 LBS (6.7 KG)

POLE BAND WITH LOW
PROFILE WELDMENT



NOKIA TD-LTE BAND 41, 2x20W MINI-MACRO RADIO

FRONT VIEW

SIDE VIEW

3 MINI MACRO RADIO (2X20W) (RRH)
C3|EQ1 SCALE: N.T.S. NET WEIGHT 26.45 LBS (12.0 KG)

DESIGNED FOR:

extenet
SYSTEMS

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DESIGNED BY:

PROFESSIONAL ENGINEER-STATE OF NEVADA
ERIC V. RAWLINS
Exp. 12/31/19
CIVIL / STRUCTURAL
NO. 22169
3/4/19

PROJECT NAME:

SW-NV-LVSTRI-00040
VG90XS323

METAL NODE POLE
SMALL CELL
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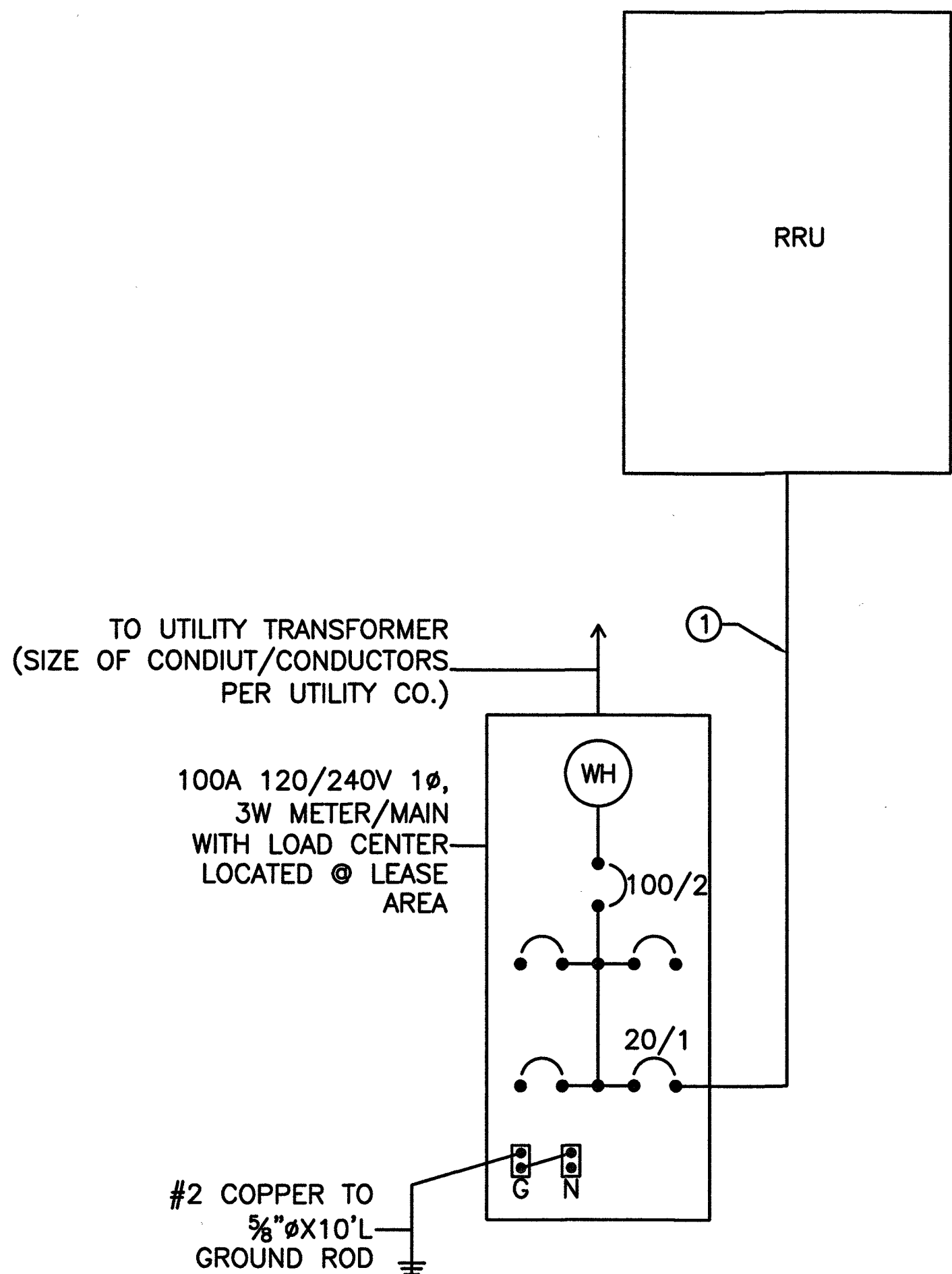
EQ1

The diagram illustrates the test setup for the LTE 2500. It features three RFS units (APXV23-276512-C-A20) at the top, each with a HI port and a RET port. The HI ports are connected to two Microlab D3-85FD Power Splitters (4.8dB loss). The RET ports of the RFS units are connected to the RET port of the LTE 2500 unit. The LTE 2500 unit has two ports labeled P1 and P2, which are connected to the outputs of the power splitters. The LTE 2500 unit is a Nokia FWHR (B41, 2x20W).

RF 1

KEYED CONDUIT NOTES:

① 3/4" C (IMC) 2#12, (1) #12 GND, THWN, Cu. (APPROX 20').



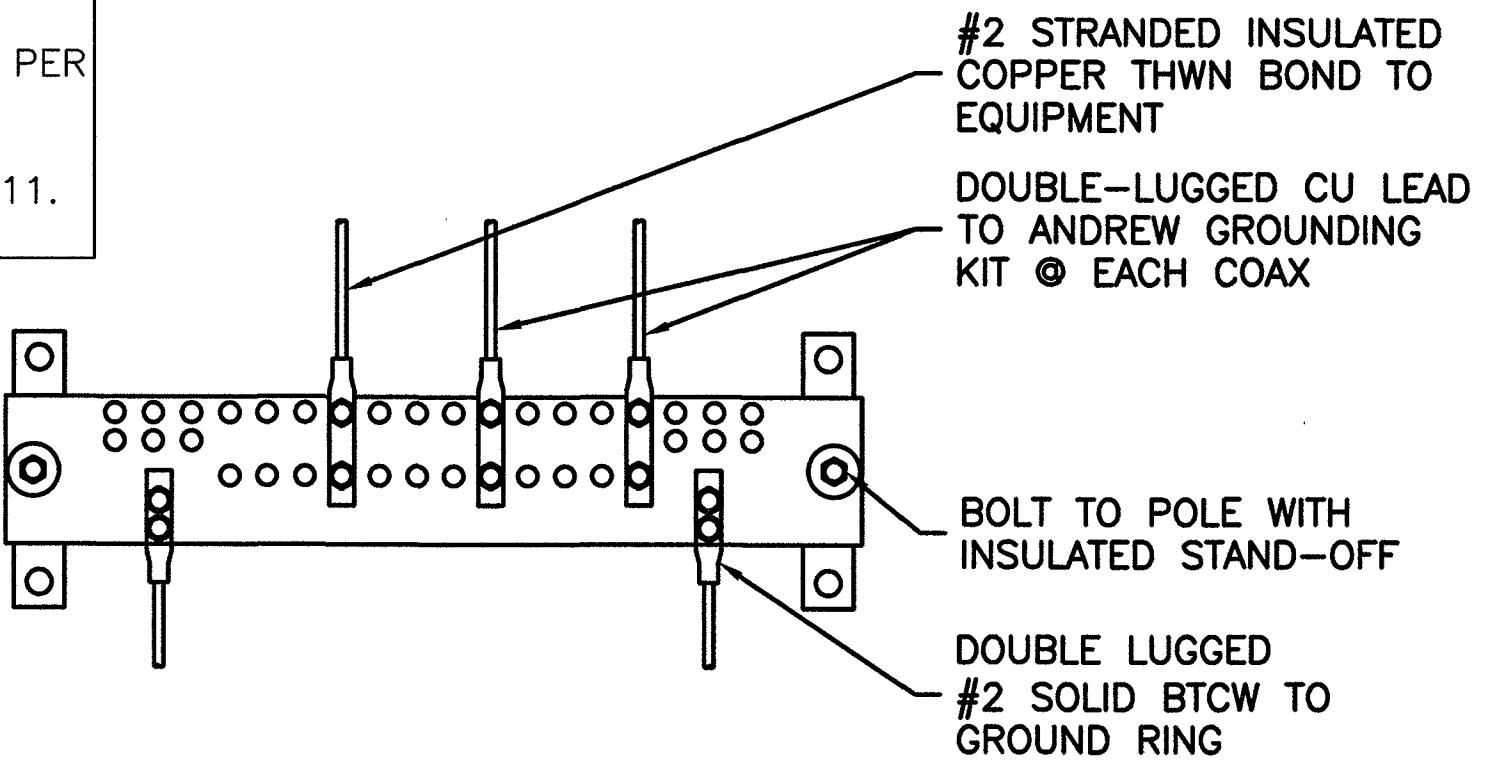
SINGLE LINE DIAGRAM



RF SIGNAGE

THEFT DETERRENT:

ALL EXTERIOR GROUND BARS TO BE GALVANIZED STEEL ATTACHED WITH TAMPER PROOF HARDWARE AND WITH ALARM CONNECTIONS PER LESSEE GROUNDING STANDARD NSTD46 REVISION DATE 2-1-11. SEE NOTES BELOW.



MASTER GROUND BAR
BOLT TO UTILITY POLE @ ELEVATED EQUIPMENT

NOTES:

- 1 ALL HARDWARE TO BE TAMPER PROOF STAINLESS STEEL PER NSTD46 REVISION DATE 2-1-11.
- 2 COAT ALL SURFACES WITH KOPR-SHEILD BEFORE MATING.
- 3 ALL LUGS SHALL BE 2-BOLT CONNECTIONS.
- 4 EXTERIOR BUS BARS: 4"x20"x1/4" GALVANIZED STEEL.
- 5 INTERIOR BUS BARS: 4"x20"x1/4" COPPER.
- 6 ALL LEADS TO MGB MUST BE LABELED ACCORDING TO NSTD46 REV 2-1-11 SECTION 3.8, FIG. 3.4. WHEN FUTURE REVISIONS ARE ISSUED THE CORRESPONDING INFORMATION FROM THE MOST RECENT REVISION SHALL BE USED.
- 7 EXTERIOR GROUND BARS SHALL HAVE ALARM CONNECTIONS FOR THEFT PROTECTION AS SPECIFIED IN NSTD46 REV DATE 2-1-11 SECTION 5.3.

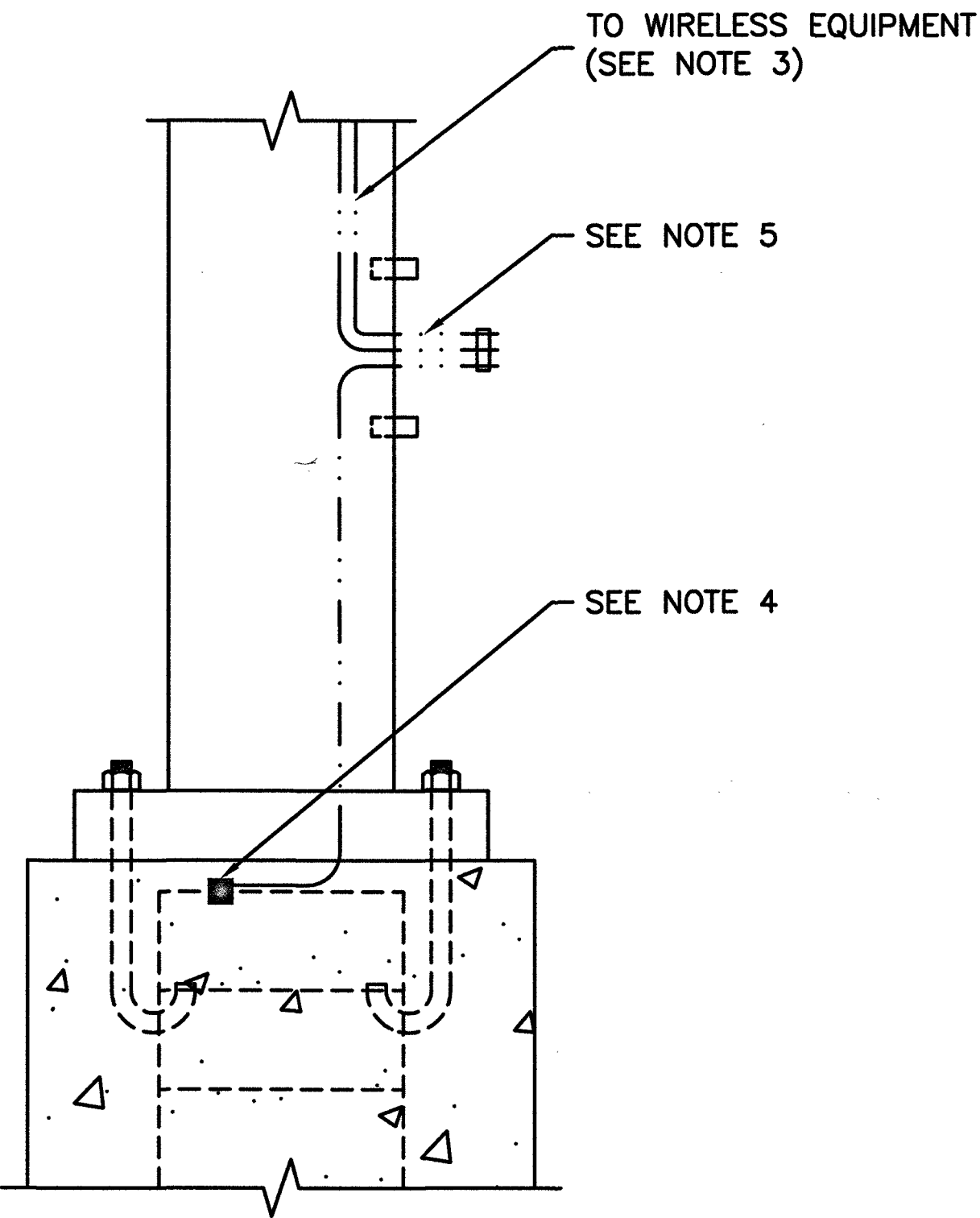
GROUNDING SCHEMATIC DETAILS
SCALE: N.T.S.

GROUNDING LEGEND:

▲	CADWELD CONNECTION
■	MECHANICAL CONNECTION
⊗	5/8"x8" CU CLAD STEEL GROUND ROD
---	#2 SOLID, TINNED, BARE COPPER
---	#2 BARE, TINNED, STRANDED COPPER GROUND

NOTES:

1. ALL GROUNDING CONNECTIONS SHALL BE MADE WITH APPROVED METHODS SUCH AS CAD WELD OR IRREVERSIBLE COMPRESSION LUGS. CONNECTIONS TO EQUIPMENT OR ACCESSIBLE GROUND BARS MAY BE 2-HOLE BOLT ON LUGS.
2. ALL GROUND WIRE SHALL BE EITHER #2 SOLID, TINNED BARE COPPER OR #2 STRANDED, INSULATED COPPER CONDUCTOR.
3. ANY WIRELESS EQUIPMENT SUCH AS ON ANTENNAS OR RRH'S SHALL BE BONDED TO THE POLE OR DIRECTLY TO A GROUND BAR.
4. GROUND BAR & POLE SHALL BE BONDED DIRECTLY TO REBAR IN POLE BASE WITH #2 COPPER CONDUCTORS.
5. IN ABSENCE OF A GROUND BAR A COPPER SPLIT-BOLT MAY BE USED TO BOND GROUNDING CONDUCTORS TOGETHER.
6. ELECTRICAL SERVICE SHALL BE GROUNDED INDEPENDENTLY FROM POLE.
7. CONTRACTOR TO BOND ANY METALLIC ITEMS WITHIN 6' OF EQUIPMENT, SHELTER OR GROUND RING TO GROUND RING.
8. ANY GROUNDING OR BONDING CONDUCTOR INSTALLED INSIDE ANY TYPE OF METALLIC CONDUIT MUST BE BONDED TO BOTH ENDS OF THE CONDUIT WITH HARDWARE U.L. LISTED FOR THIS PURPOSE.

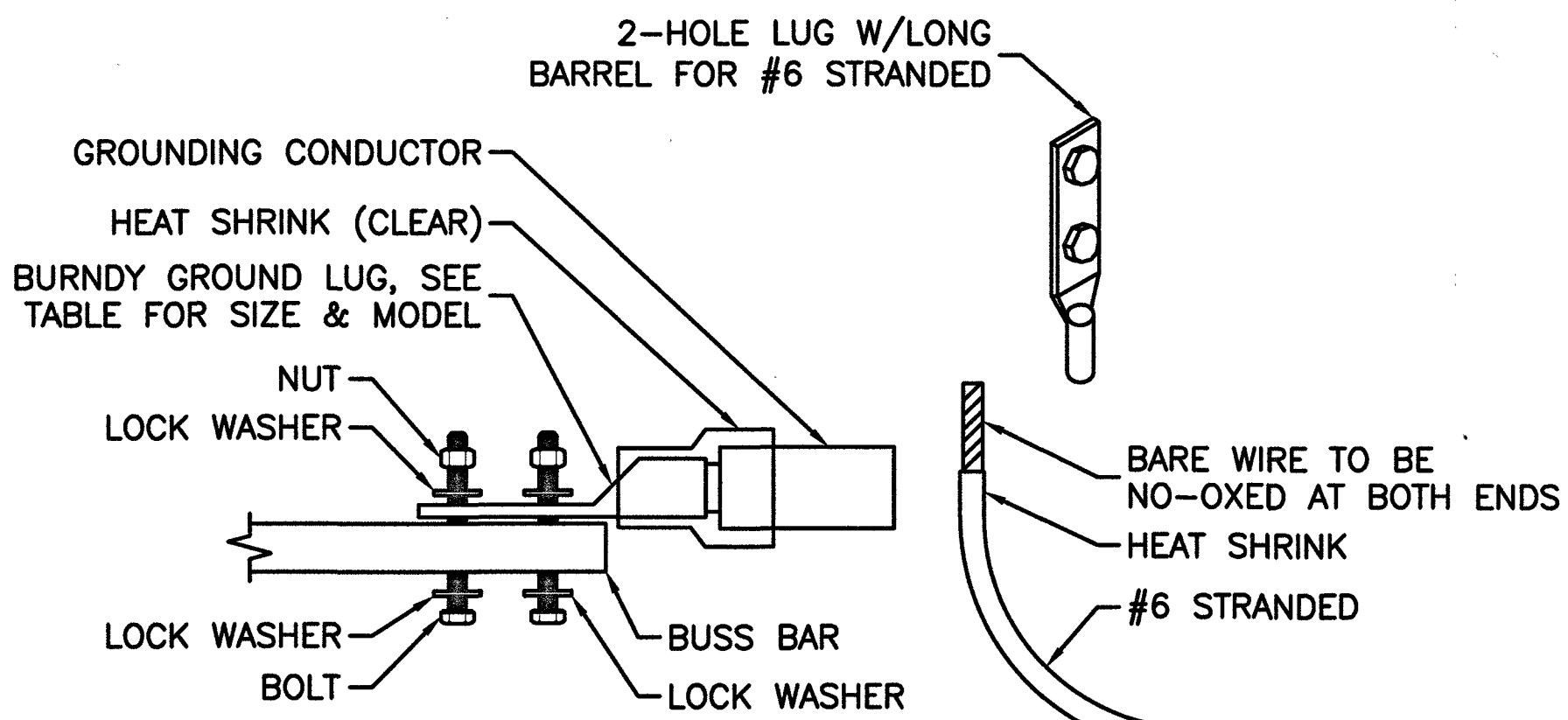


GROUNDING PLAN
SCALE: N.T.S.

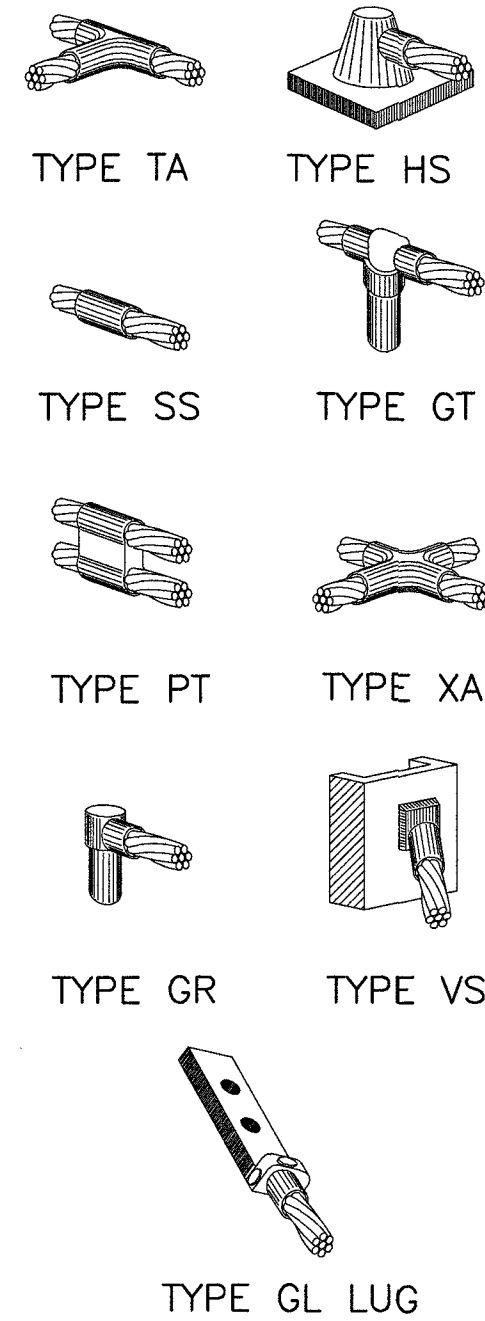
NOTES:

- 1 ALL HARDWARE BOLTS, NUTS & LOCK WASHERS SHALL BE STAINLESS STEEL. CONNECTIONS SHALL BE BOLT, LOCK WASHER, BUS BAR, LUG & LOCK WASHER, IN THAT ORDER.
- 2 CONNECTIONS TO STEEL SHALL HAVE A THOMAS & BETTS IDTW DRAGON TOOTH TRANSITION WASHER BETWEEN THE LUG, & STEEL. THE ORDER OF STEEL CONNECTIONS SHALL BE BOLT, LOCK WASHER, STEEL, DRAGON TOOTH WASHER, LUG, LOCK WASHER, NUT.
- 3 KOPER SHIELD, ANTIOX, CR NO-OX, OR EQUIVALENT IS TO BE PLACED WHERE ALL DISSIMILAR METALS CONNECT.

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6	YA6C-2TC38	3/8"-16 NC S 2-BOLT
#2 AWG SOLID	YA3C-2TC38	3/8"-16 NC S 2-BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8"-16 NC S 2-BOLT
#2/0 AWG	YA26-2TC38	3/8"-16 NC S 2-BOLT
#4/0 AWG	YA28-2N	1/2"-16 NC S 2-BOLT



GROUND LUG TO BUS BAR DETAIL
SCALE: N.T.S.

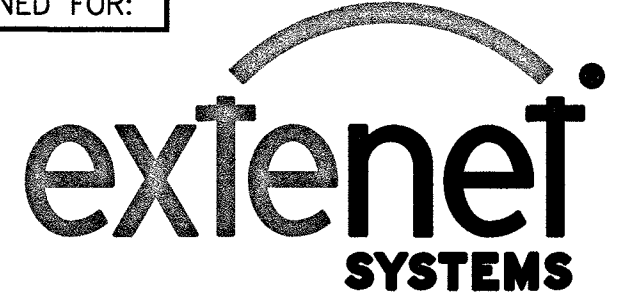


NOTE:

CADWELD "TYPES" SHOWN ABOVE ARE EXAMPLES - CONSULT WITH PROJECT MANAGER FOR SPECIFIC TYPES OF CADWELDS TO BE USED FOR THIS PROJECT.

TYPICAL CADWELD
& COMPRESSION
CONNECTION DETAILS

DESIGNED FOR:



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ELECTRICAL &
GROUNDING DETAILS

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E1